

**MARITIME
REPORTER**
AND
ENGINEERING NEWS



James A. Farrell Jr.

**Chairman Of Farrell Lines
James A. Farrell Jr. Receives
Admiral Of The Ocean Sea Award**

(SEE PAGE 6)

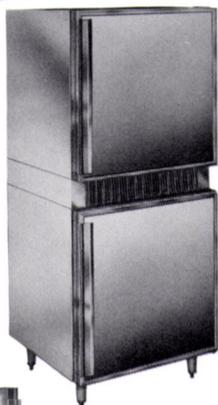
OCTOBER 15, 1977

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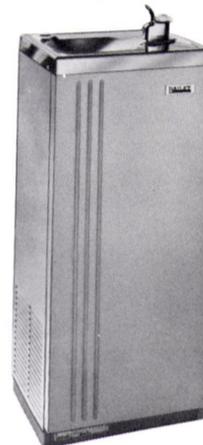


Refrigerator/Freezer
Combination



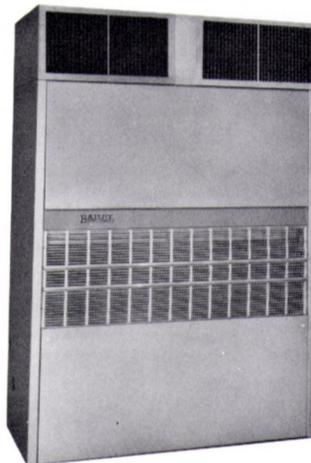
Refrigerator

Water Cooler



Refrigerator/Storage
Unit

Air Conditioners



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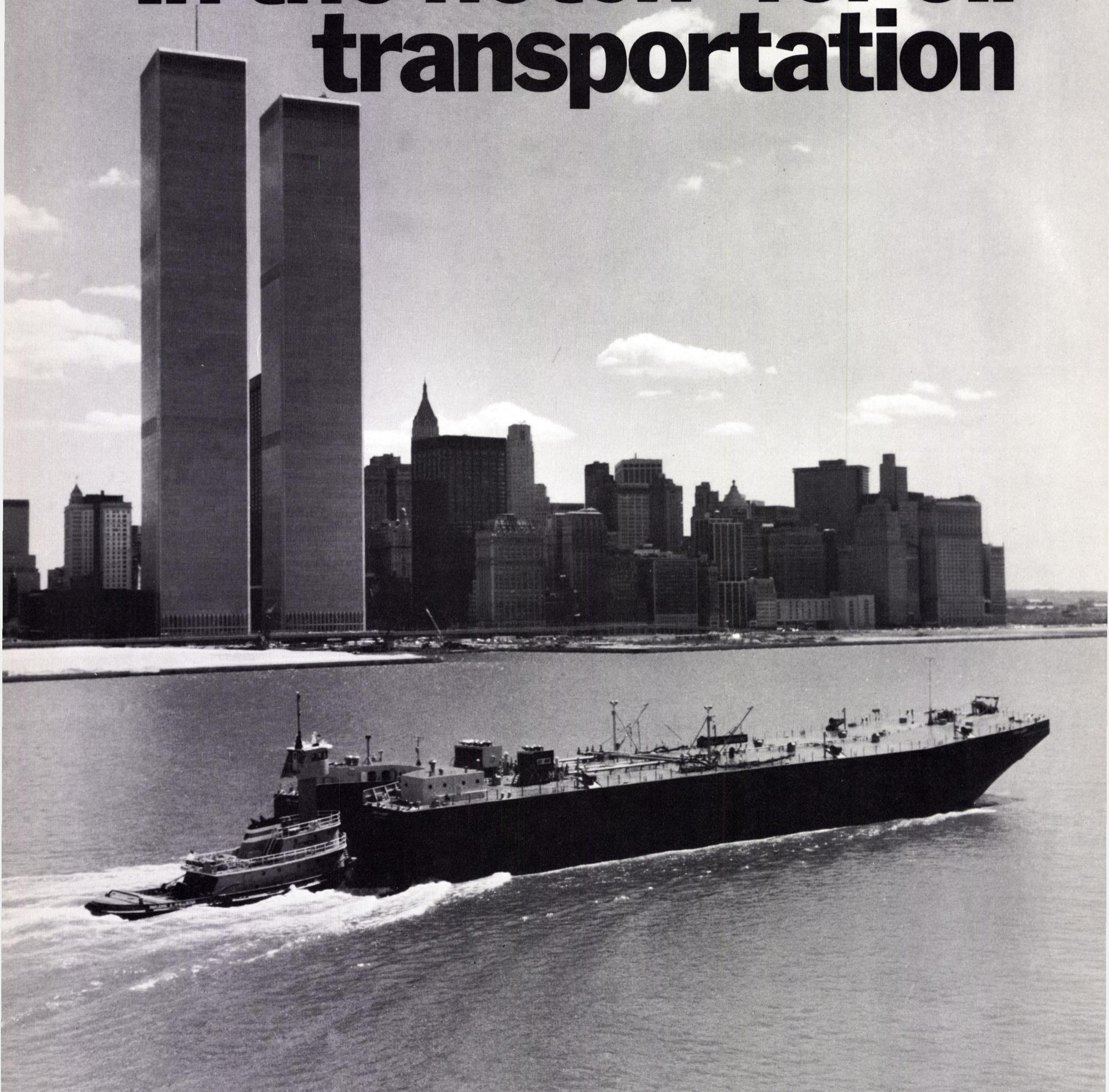
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\$11-Million Award To Raymond Int'l For Dock Work In Nigeria

Raymond International of Delaware, a wholly owned subsidiary of Raymond International Inc., 2801 South Post Oak Road, P.O. Box 22718, Houston, Texas 77027, has been awarded a contract for over \$11 million in conjunction with the expansion of the Port of Warri, Nigeria.

Raymond will install concrete cylinder pile foundations for new docks that will increase the port's total number of berths from two to eight.

"Raymond has been actively assisting in the development of Nigeria since the 1940s. In the last decade, the development pace has accelerated, and so has our work there. This new award means that Raymond's contracts in Nigeria during the past two years have a total value of over \$40 million," said Henry F. LeMieux, president and chairman.

A Raymond manufacturing affiliate, located in Virginia, will fabricate 36-inch-diameter concrete cylinder piles averaging 82 feet in length. From the plant, piles will be barged nearly 6,000 miles to Warri.

"This project is our first opportunity to utilize the Raymond pre-cast, prestressed concrete cylinder pile in Nigeria. This pile is a superior construction material for marine projects because of its great structural strength combined with a high resistance to corrosion, damage from marine life and water action," Mr. LeMieux added.

Foundation construction on the 6,500-foot-long wharf is scheduled to begin in December of 1977 and to be completed in the latter part of 1978. Raymond will also perform soil boring tests at the site.

Raymond specializes in marine heavy construction and foundations. In the Arabian Gulf, the company is using concrete cylinder piles for construction of a six-mile-long liquefied petroleum gas pipeline support trestle under a contract for about \$150 million. The concrete cylinder piles for that project are being manufactured at a Raymond plant located in the United Arab Emirates and barged 400 miles to the construction site at Ju'Aymah, Saudi Arabia.

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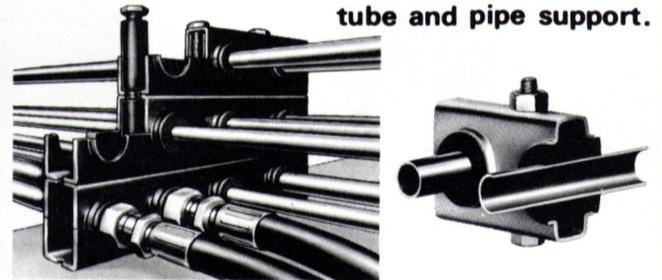
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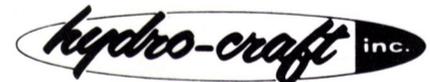
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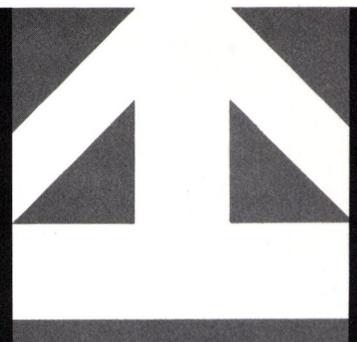
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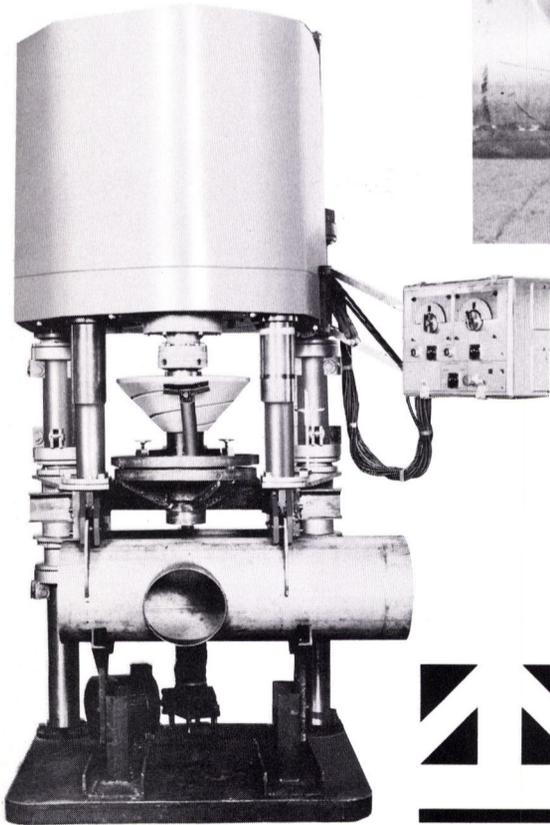


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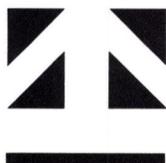


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MR

James A. Farrell Jr. Receives Admiral Of The Ocean Sea (AOTOS) Award



Shown on the dais, left to right: Tom Smith, president, Farrell Lines Inc.; James A. Farrell Jr., chairman, Farrell Lines Inc.; James R. Baker, chairman, Moore McCormack Resources; Congressman John M. Murphy, and Shannon Wall, president, National Maritime Union.

James A. Farrell Jr., chairman of Farrell Lines Incorporated, is the 1977 recipient of the Admiral of the Ocean Sea Award (AOTOS). At 76, and still active as chairman of his family-owned line, he has logged a full half-century of energetic pioneering service to the cause of American-flag shipping and the expansion of U.S. foreign trade, particularly with the continent of Africa.

The award was presented to him by James R. Barker, chairman, Moore-McCormack Lines, before a dinner-dance audience of 1,000 persons, Friday, September 23, at the New York Hilton Hotel.

The AOTOS Award takes its name from the title King Ferdinand and Queen Isabella of Spain bestowed on Christopher Columbus upon his return from discovering the New World in 1493. The title was revived by United Seamen's Service in 1970, when it sponsored the first AOTOS Award to honor the man each year who does the most to promote the cause of U.S.-flag shipping. The committee that selects each annual recipient is comprised of maritime labor, management and government leaders.

James A. Farrell Jr. was elected president of the newly formed American South African Line upon his graduation from Yale in 1926. In the ensuing years, he extended his company's services to all three coasts of Africa and is credited with doing the most to create an awareness in the American public about the future of Africa as a developing nation. In 1963, Farrell Lines extended its service to New Zealand and Australia, and is the only American-flag company operating from the four coasts of the United States.

Mr. Farrell has been company chairman since 1964, and served additionally as chief executive officer from 1966 to 1970. In building Farrell Lines, he has pioneered welded shipbuilding, international port development, personnel and labor relations, conference organization, and he has been an outspoken advocate of U.S.-flag interests through the Committee of American Steamship Lines, which he founded and chaired.

As the head of three generations of Farrell maritime tradition, James A. Farrell Jr. looks back on a span of history from square-riggers to automated steamships. When asked about the future, he says mildly, "If you mean for me personally, the Bible says threescore and ten." But in line with his company's trade, he reflects great pride in the type of close-knit family management and foresight that has made the Farrell fleet of 16 ships the youngest on the seas today, with an average age of 7 to 9 years per ship.

The Farrell tradition began in the mid-1880s, with immigrant mariner John Guy Farrell, who operated ships in the U.S. coastwise trade, and continued with James A. Farrell, who rose to become president of the United States Steel Corporation, essentially on his shipping expertise. He created both the Isthmian and Argonaut Lines. His sons John J. and James A. Farrell Jr. co-founded the American-South African Line in 1926, and renamed it Farrell Lines in 1947, with the acquisition of the West African trade route.

A proud chapter in the Farrell History was when Farrell Sr. saved the last American square-rigger, the Tusitalia, and put it

into its last 12 years of commercial service. In acknowledgement, Joseph Conrad wrote the elder Farrell, "The vital truth of sea life is to be found in the ancient saying that it is the stout hearts that make the ship safe." This embracing message has been posted in every Farrell ship and overseas office for decades and is indicative of the high regard Farrell has for the men who sail the ships.

Former Admirals of the Ocean Sea are: Assistant Secretary of Commerce for Maritime Affairs, the Honorable Robert J. Blackwell (1976); Washington Senator Warren G. Magnuson (1975); ILA president Thomas W. Gleason (1974); former Chairman, House Merchant Marine and Fisheries Committee, Congresswoman Leonor K. Sullivan (1973); former Assistant Secretary of Commerce for Maritime Affairs Andrew E. Gibson (1972); former Chairman, Federal Maritime Commission, Helen Delich Bentley (1971); former chairman, Prudential Lines, the late Spyros P. Skouras (1970), and former president, National Maritime Union, Joseph E. Curran, Special Award (1973).

Bethlehem Beaumont To Build Teledyne Drilling Platform

Bethlehem Steel's Beaumont, Texas, shipyard has received a contract for construction of a Bethlehem-designed 250-foot mat-supported jackup mobile offshore drilling platform.

The rig will be built for Teledyne Mobile Offshore Inc. of Lafayette, La., and will be capable of drilling to a depth of 25,000 feet in as much as 250 feet of water. The rig is scheduled for completion in April 1978. The announcement of the award was made by John C. Estes, general manager of the Beaumont Yard.

Teledyne Rig 18 is the 59th Bethlehem-built rig to be contracted since 1956, and is the third Bethlehem-designed and built drilling rig for Teledyne Mobile Offshore. The unit will consist of a platform 166 feet long, 132 feet wide and 16 feet deep, with a 50-foot-square drilling slot. The mat will be 210 feet by 170 feet by 10 feet and its drilling slot will be 90 feet by 87 feet. Each of the three cylindrical columns will be 312 feet long and 12 feet O.D.

The rig will be diesel-electric powered and house 60 workers in its noncombustible living quarters. There will also be capacity to store 6,600 cubic feet of bulk mud and cement, 3,000 sacks, 1,500 barrels of active mud, 4,700 barrels of drilling water storage, 450 barrels of potable water, 1,800 barrels of fuel oil and 2,350 barrels of salt water.

Newport News Lays Keel For First ULCC In \$418-Million Contract

Tenneco's Newport News Shipbuilding, Newport News, Va., on September 14, laid the keel of the first of three ultra large crude oil carriers (ULCCs), the largest merchant vessels ever to be constructed in this country.

The giant ships, to be built in the new Commercial Yard's 1,600-foot drydock, will measure 1,188 feet in length, have a beam of 228 feet and a deadweight tonnage of 390,000 long tons at 74-foot operating draft. They are designed to carry about three million barrels of crude oil at 16 knots, with a crew of 27 persons.

Contracts for the three ships, signed June 29, 1974, total \$418.6 million.

Newport is under contract to ULCC 1 and ULCC 2, wholly owned subsidiaries of Interstate Oil Transport, for two ULCCs, while the third ULCC will be constructed for Zapata Ocean Carriers, a wholly owned subsidiary of Zapata Bulk Transport, Inc.

The world's largest shipyard now has under contract or construction 17 ships, including three liquefied natural gas (LNG) carriers. Thus far this year, Newport News Shipbuilding has delivered three ships, launched three, and laid the keels for four others, for both the United States Navy and commercial customers.

Raytheon Radar Systems Installed On U.S. Army Vessels

Shipboard radar systems valued at more than a quarter million dollars have been shipped to the U.S. Army Electronics Command, headquartered in Ft. Monmouth, N.J., by Raytheon Marine Company of Manchester, N.H.

Included in the \$300,000 purchase are fourteen 12-inch and 16-inch true motion/anticollision radars, plus associated equipment and software. The radars will be installed aboard supply vessels, beach discharge vessels and ocean-going tugs ranging in size from 140 feet to 350 feet. All vessels are part of the U.S. Army Materiel Development and Readiness Command.

The American-made radar systems, which are standard Raytheon commercial products, feature the marine industry's first computerized signal processor for unparalleled image brightness and resolution. The processor amplifies weak signals on each of the systems' 10 range scales from 1/4 to 64 nautical miles, producing radar pictures that maintain their brilliance throughout the antenna's revolution.

Here is an easy way to retrofit your crude oil tanker for Inert Gas Operation

In order to meet A.B.S. safety regulations, Inert Gas Systems on crude oil tankers require flue gas containing under 5% oxygen. But the problem facing ship owner/operators is that, without major and very costly modifications, most marine boilers simply can't produce such low-oxygen flue gas . . . particularly when operating under varying or low-power demand conditions.

But now, there's an efficient, economical way for you to retrofit for compliance with Inert Gas requirements. How? By installing a Gaulin *Water-in-Fuel Emulsification System* in your boiler room. Gaulin calls it an "*F.E. System*". And it will help you achieve:

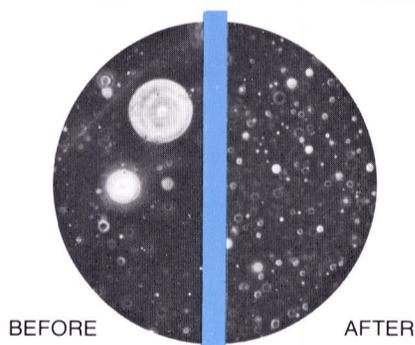
Low-oxygen flue gas — you'll get safe, low-oxygen flue gas, even at low power levels, without the need to redesign your boiler front or windbox. Or to change burners. And without complex, sensitive control systems.

Much cleaner flue gas — the lowered oxygen level will combine with reduced particulate emissions to dramatically cut back the soot loading to your scrubber. Your scrubber maintenance costs will be slashed and the service life of your scrubber system will be greatly extended.

Improved combustion — Gaulin's *F.E. System* shipboard installations to date have provided a number of ship owner/operators with overall boiler efficiency improvement and significant fuel savings.

The F.E. System and how it works.

Gaulin's high-energy *F.E. System* utilizes a high-pressure homogenizer to break down the normally large agglomerates present in the fuel oil. A very small percentage of water is added and emulsified as part of the fuel mixture during the high-energy homogenization process (much lower amounts of water concentration are used than with such methods as low-pressure ultrasonic or other light stirring or mixing techniques). The droplets of water become uniformly dispersed in the fuel and are essentially one-micron in size.

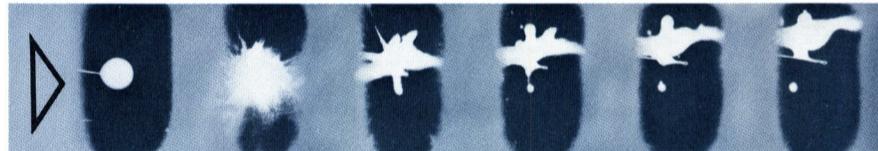


This before-and-after photomicrograph (1000X) graphically illustrates the superior effects achieved by Gaulin's *F.E. System*. The control sample (left), a pre-mix of 6% water in #6 fuel oil, is dramatically compared with a sample of the homogenized fuel emulsion.

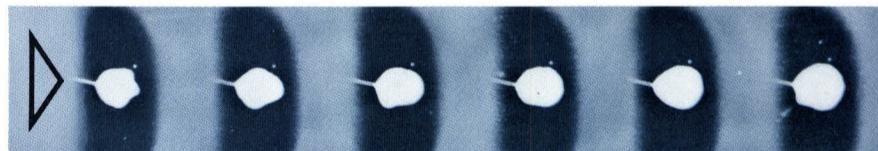
Micro-explosions achieved

After homogenization the Gaulin machine then delivers the completely emulsified water-in-fuel oil mixture to the boiler combustion chamber where the beneficial phenomenon known as "micro-explosions" occurs. The resulting secondary atomization produces an even better dispersion and mixing of the primary fuel spray.

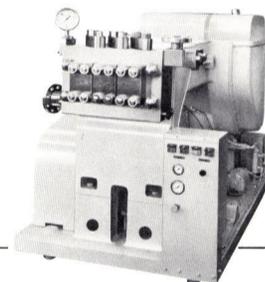
The results? Reduced excess air . . . low-oxygen flue gas . . . less soot loading to scrubbers and related piping . . . improved boiler efficiency . . . fuel savings.



A micro-graphic comparison of the burning of fuel droplets captured by sequential, high-speed, 16mm cinematography. The frames in the top sequence (5,000/sec.) resulted from burning a 350-micron droplet of water-in-Bunker C fuel oil emulsion. Those views in the lower series (4,000/sec.) record the combustion of a 450-micron droplet of neat Bunker C fuel. (Courtesy of Guggenheim Laboratories, Princeton University)

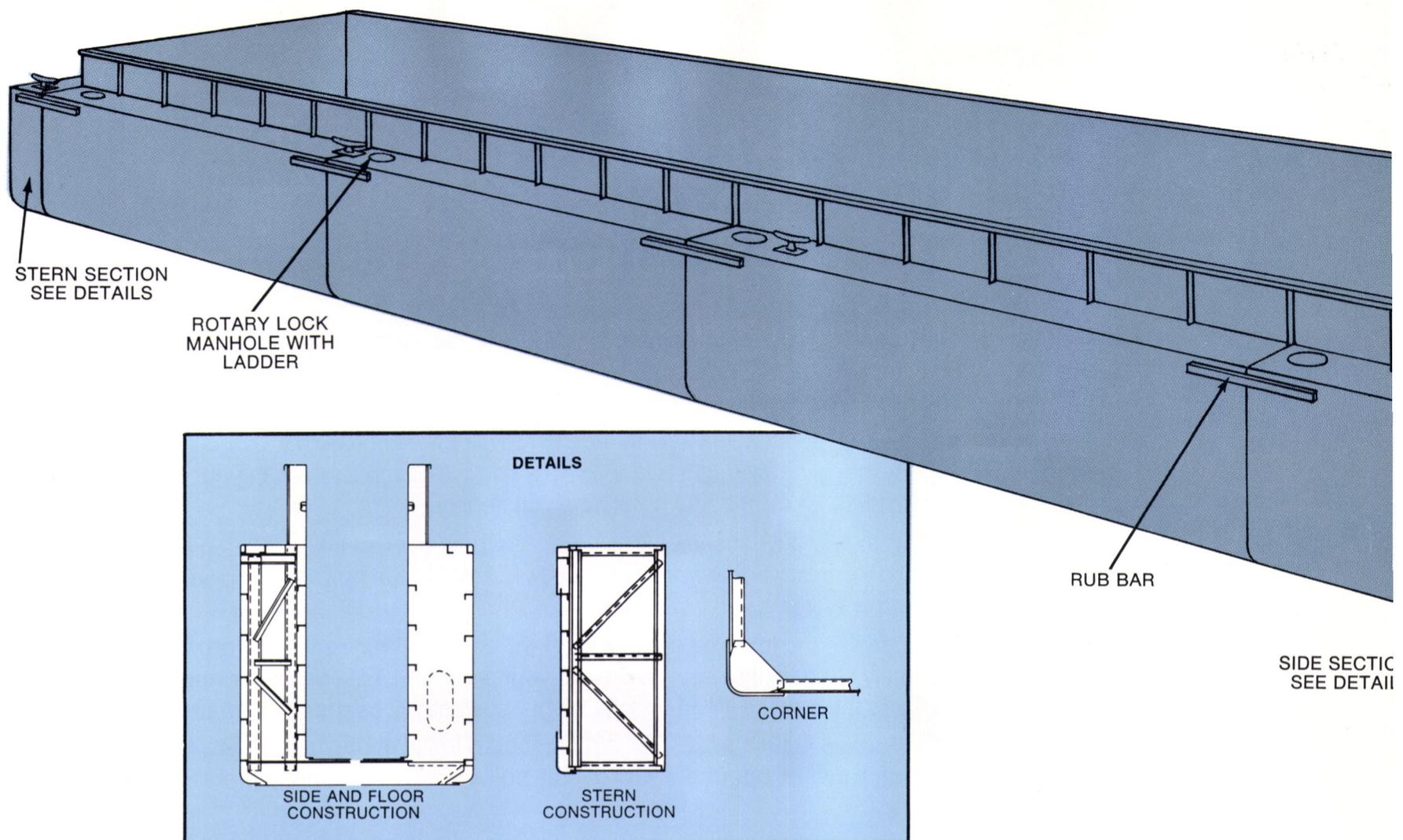


The Gaulin *F.E. System* — it can be retrofitted in your boiler system as a secondary fuel atomization process to help you economically produce low-oxygen, low-particulate flue gas from your boilers.



Learn the facts.

Get the full technical story about the Gaulin *F.E. System* and how it can help you simplify your Inert Gas retrofit project. Contact Gaulin at Garden Street, Everett, Mass. 02149. Telephone: (617) 387-9300, Telex: 094-9415.



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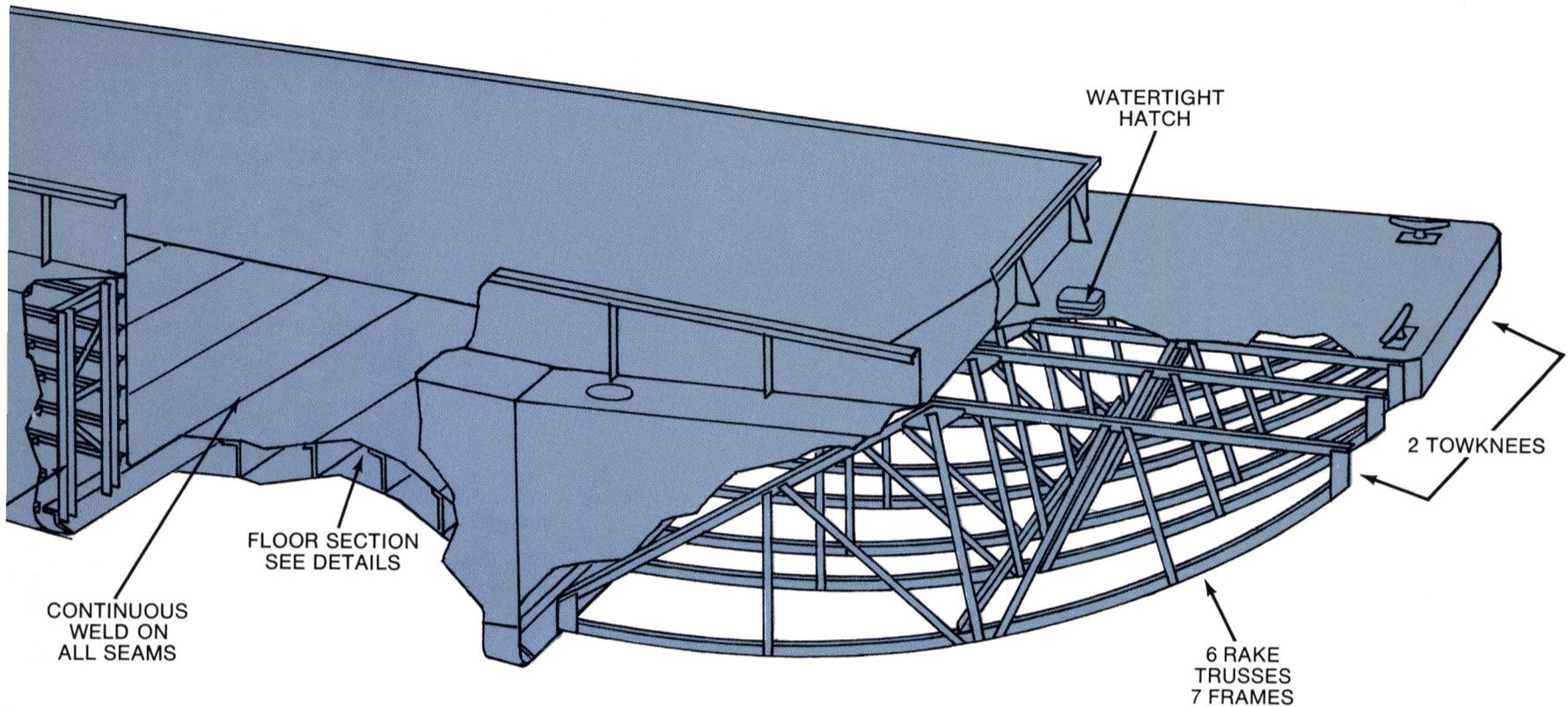
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Cubic Capacity	70,000		Side Framing	5x3x5/16" 1 Long'l.	
Tons at 9'0" Draft	1,536		Hopper Side Pl.	5/16"	
Steel Weight	266.4 T		Stern Box Length	5'6"	
Height at Side	12'		Stern Corners	5/8"	
Coaming Height	4'		Top Knuckle	5/8"	
Length of Rake	27'6"		Lower Knuckle	5/8"	
Rake Bottom Pl.	1 1/32"		Deck Pl.	5/16"	
Headlog Pl.	5/8"		Transom	Straight	
Trusses & Frames	6 & 8		Transom Pl.	3/8"	
Bottom Pl.	1 1/32"		Deck Fittings	2 butt. chocks 12 kevels	
Innerbottom Pl.	1/2"		Rub Bars	Intermittent at top	
Side Box Width	3'3"		Wheelabrate	Yes	
Top Hopper Flange	13"		Paint	1 ct. barge paint	

American Bureau Of Shipping Elects Johnston President

William N. Johnston was elected president of the American Bureau of Shipping at the semiannual meeting of the ABS board of managers held in New York City on September 20, Robert T. Young, chairman and president, announced. Mr. Young, who will

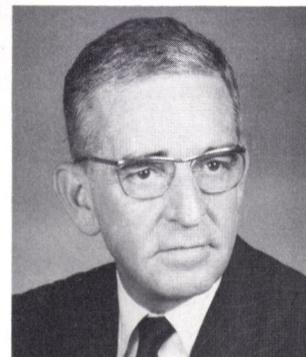
remain chairman of the board of ABS, said that Mr. Johnston will assume his duties as president on November 1.

Mr. Johnston will become the 12th president of the international ship classification society in its 115-year history. He joined ABS in 1951, and served as a Surveyor for seven years in Europe, and eight years in the United States before being appointed Principal Surveyor for New Or-

leans. In 1968, he was appointed Principal Surveyor for Western Europe, headquartered in London, England. He returned to the United States in 1972, when he was appointed assistant to the chairman. Mr. Johnston was elected a vice president in 1974, and senior vice president in 1976.

A native of Mobile, Ala., Mr. Johnston graduated from the Massachusetts Institute of Technology with a Bachelor of Science

degree in naval architecture and marine engineering. He also graduated from Auburn University, Auburn, Ala., with a Bachelor of Science degree in mechanical engineering. During his academic career, he was elected to Tau Beta Pi, honorary engineering fraternity, and Pi Tau Sigma, honorary mechanical engineering fraternity, and was also a member of Sigma Chi social fraternity.



William N. Johnston

Mr. Johnston is a member of The Society of Naval Architects and Marine Engineers, the American Welding Society, and is a Fellow of the Royal Institution of Naval Architects and the Institute of Marine Engineers. He is a member of the Union League Club, New York, and the Army and Navy Club, Washington, D.C.

Mr. Johnston is also vice president of ABS Computers, Inc., a wholly owned subsidiary of the American Bureau of Shipping.

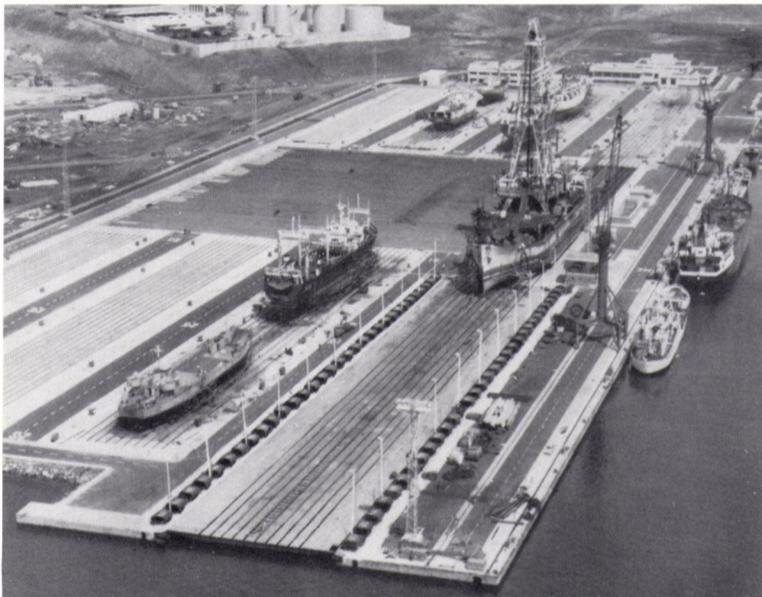
DeLong Corporation Appoints Ogden Chief Engineer

The appointment of Edward G. Ogden as chief engineer has been announced by Bernard Delannoy, executive vice president of DeLong Corporation, 29 Broadway, New York, N.Y. 10006.

DeLong is engaged in the design and construction of piers, docks, offshore terminals, pipelines, bridges, and other heavy construction projects.

Mr. Ogden has had a long and distinguished engineering career. A 1955 graduate of the U.S. Naval Academy, he also holds an M.S. degree in naval architecture and marine engineering, and Engineer's degree in naval engineering, both from the Massachusetts Institute of Technology. His career includes 16 years of engineering design and management in a variety of positions, including Assistant Technical Director, Naval Ship R&D Center, and Ship Design Officer, Naval Ship Engineering Center. Most recently, Mr. Ogden was associate professor and head, department of marine engineering at Moody College of the Texas A&M University.

He is a licensed chief engineer (steam vessels) in the U.S. merchant marine, and a registered professional engineer in the State of Texas.



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Platform: 171.6 meters by 30 meters, lifts vessels up to 25,000 d.w.t.

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Most economical shiplift system.

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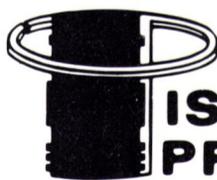
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If you're having trouble with hard-to-find spare parts for your SULZER, DOXFORD GOTAVERKEN, or MAN diesels at realistic, competitive prices, call on PISTON PRODUCTS for new components. Extensive inventories in factory stock.

Liners, heads, pistons, exhaust valves, etc. for B & W, STORK and PIELSTICK diesels.

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Now replacement parts such as liners, heads, pistons, skirts and other large items can be provided on a yearly contract basis. The anticipated parts required for the ensuing year are ordered in advance at fixed prices and stocked at the factory at no cost ready for immediate delivery. The customer is invoiced only as items are delivered during the year and at the end of the year for any items remaining in stock. For such remaining items, there would be a small charge for continued storage.

This annual parts service offers two distinct advantages: Immediate delivery of parts that sometimes require long lead-time; and fixed prices.

Dockside To Represent Burmeister & Wain In Southern California

Dockside Machine and Ship Repair, 131 North Avalon Boulevard, Wilmington, Calif. 90744, have been appointed Manufacturers Representatives in southern California for Burmeister & Wain Company of Copenhagen, Denmark. The announcement was made by **Robert Strachan**, vice president of Dockside.

Dockside began operations January 1961, and currently operates with a staff of 55 highly skilled employees experienced in marine repairs. The labor force is offered on an around-the-clock basis, with interchangeability designed to complete a repair with the least number of men and man-hours. In most instances, overtime can be minimized by utilizing a swing and graveyard shift to complete required work. Dockside offers a complete repair facility to shipping companies operating into southern California ports from San Diego to Port Hueneme. The shipboard service is backed by a fully equipped machine and welding shop. A wide range of materials used in ship repair and metal fabricating work is carried in inventory to avoid contingent delays.

Dockside's management and years of experience is as follows: **Edward Rittenhouse**, president, with 35 years in the maritime industry; **Robert Strachan**, vice president, with 19 years in the maritime industry; **John Davis**, secretary and field superintendent, with 37 years in the maritime industry, and **Kenneth Foley**, treasurer and superintendent engineer, with 15 years in the maritime industry.

In addition to the experience offered by the corporation's management, Dockside offers a nucleus of highly qualified foremen and ship superintendents to supervise all phases of the repair work.

Sun Company Names Maling Vice President

Sun Company, 100 Matsonford Road, Radnor, Pa. 19087, has announced that **William B. Maling**, president of a subsidiary, has been named vice president, business analysis, for the parent.

Mr. Maling has been president and a director of Totem Ocean Trailer Express, Inc. (TOTE), a wholly owned Seattle, Wash.-based subsidiary of Sun Shipbuilding and Dry Dock Company, Chester, Pa., which in turn is a wholly owned subsidiary of Sun Company.

He will manage a staff which will oversee business analysis assignments related to industries selected by senior executive management. The staff will charac-

terize industries and companies in a consistent manner for evaluation by the Corporate Development Committee and operating executives.

Mr. Maling is a graduate of Drexel Institute of Technology, with a B.S. degree in mechanical industrial engineering.

He was a structural design engineer with J.J. Henry Co., Inc., naval architects, before joining

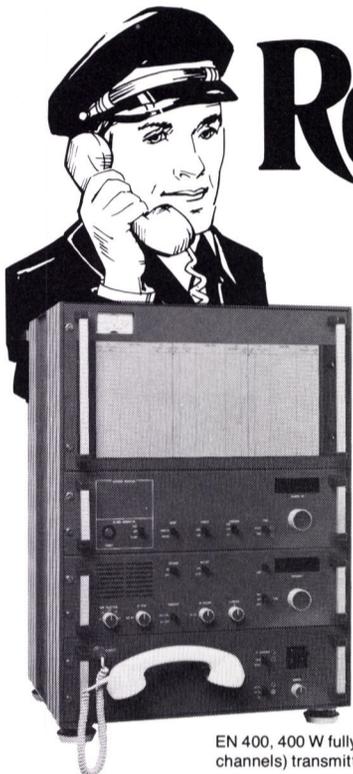
Sun Ship in 1961 as project engineer in the shipyard's production control group. He was named department head of the New Ship Sales Group, became marketing manager in 1964, and corporate secretary in 1971. In 1972, he was appointed vice president. In April 1974, Mr. Maling was named to the company's board of directors.

From May 1975 to March 1976, Mr. Maling served as the first

president of TOTE, which operates a trailership service from Tacoma, Wash. to Anchorage, Alaska.

In April 1976, Mr. Maling was appointed executive vice president of Sun Ship, with responsibility for the corporate development of the shipyard's activities in the dry cargo field.

He returned to TOTE early this year as president and director.



EN 400, 400 W fully synthesized (100 channels) transmitter/receiver

Ready for real ssb? Electro-Nav is ready for you.

Some SSBs are more equal than others. And here's how Electro-Nav picked the winners.

We checked out just about every unit around, both foreign and domestic. We tested performance under a wide range of actual operating environments, studied track records on frequency and speed of repairs, and compared prices. On the basis of the data we selected 4 units, made by three top manufacturers. Each unit is a natural for one particular range of operating characteristics. And each gives you the best value for your dollar within its class.

Top of the line is a synthesized 1500 watt transmitter that will give you world-wide ship-to-shore service, anytime, anywhere. It has telex capability, and a lot more.

Second, a 600 watt transmitter, synthesized, with telex adaptability. Completely solid state, including the final output section, so there are no costly tubes to replace. And it will give you substantially world-wide range under favorable conditions.

Third, a new synthesized 400 watt radio telephone transmitter-receiver with excellent extra long range capability. We're so proud of this one we've arranged to put the Electro-Nav name on it.

Fourth, a 125 watt crystal-controlled transceiver that will give you proven superb performance throughout its range. It's unbeatable for coastwise and nearby foreign communications.

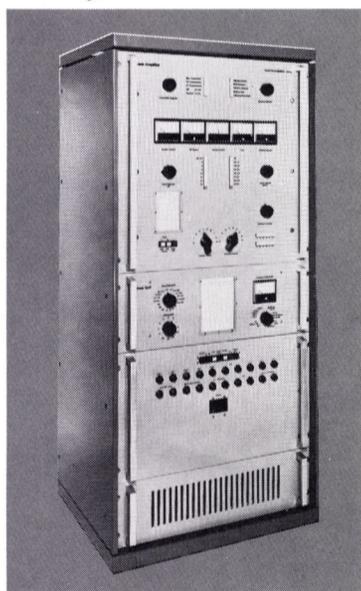
One of these units will fit your needs to a T. They're all easy to install, and easy to retrofit. All come under a comprehensive world-wide service guarantee. And for all of that the price is more than right for what you're getting. Ready for real SSB? Mail the coupon. We'll send you all the information you'll need to make a really intelligent decision.

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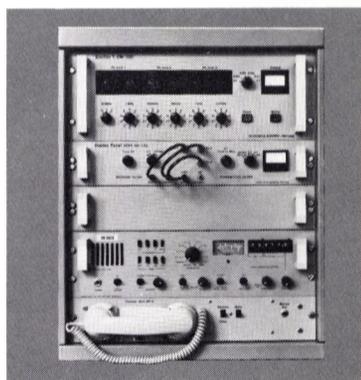
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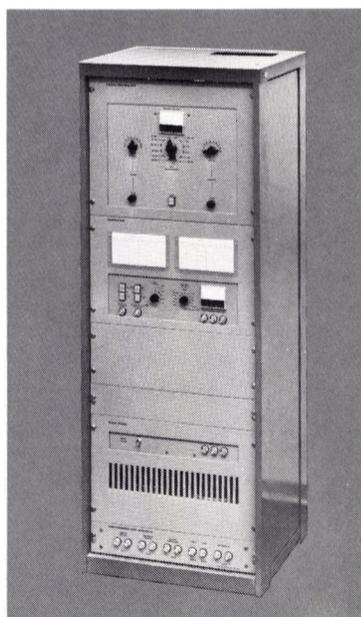
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Atlantic Sandblasting Receives Fourteen-Ship Mexican Contract

Atlantic Sandblasting & Coatings, Inc. was recently awarded a sandblasting and coatings contract for a total of 14 ships by PEMEX and Sociedad Civil Seccion of Mexico.

The first ship of a total of 14, the Plan de Guadalupe, arrived

in Tampa, Fla., on August 29. **Louis Preziosi**, president of Atlantic Sandblasting and Coatings, Inc., has been negotiating the contract for over a year with the owners.

The sandblasting and coating project for internal tank linings will be performed in conjunction with Tampa Ship Repair & Dry Dock Co., Inc., a division of The American Ship Building Company. Atlantic Sandblasting & Coatings,

Inc., is the prime contractor, and is subcontracting the pier facilities and various services from Tampa Ship.

Matthew E. Clark Jr., vice president of sales and marketing of Atlantic Sandblasting & Coatings, Inc., is coordinating all activities with Tampa Ship Repair & Dry Dock Co.

Kenneth Lang, vice president of production, is presently overseeing major sandblasting and

coating projects at Maryland Shipbuilding & Drydock Co. and also Norfolk Shipbuilding & Drydock Corp., but will be joining the blasting and coating project in Tampa in the near future.

Atlantic Sandblasting & Coatings, Inc. has been in business for over 20 years, and has grown into one of the leading sandblasting and coating contractors in the marine industry. Atlantic Sandblasting & Coatings, Inc., main office is at 505 Faulkenburg Road, Tampa, Fla. 33619, with branch offices in New York, N.Y. and San Francisco, Calif.

Maritime Transport Overseas Inc. Names Templet Executive VP

John V. Templet has been appointed executive vice president and director of Maritime Transport Overseas Inc., 2100 Travis—Suite 1207, Houston, Texas 77002. Joining the firm as a managing partner, Mr. Templet brings to the company over 20 years' experience in all phases of international ocean transportation.

MTO's North American head office is located in Houston, with other offices in New York and Montreal. The firm's corporate headquarters are in Dusseldorf, West Germany, with other offices in Hamburg, Bremen, Antwerp, London, and Paris. The company also has offices in Iran, Saudi Arabia, the United Arab Emirates, and Oman.

The MTO group of companies specializes in the worldwide transportation of project cargoes. Aside from ocean transportation, the company is active in terminal operations, stevedoring, and inland transportation.

New Launch Service For Port Of Corpus Christi

Penguin International, Inc. has announced the formation of the Water Taxi Company to provide launch service to the ships anchored off the Port Aransas (Texas) Bar. The launch service is available to all vessels, and will provide 24-hour service (by appointment with ship's agent) for transporting people and supplies. Prior Customs and Immigration permission will be required of all vessels not having a U.S. Clearance. The Water Taxi Company, with Capt. **Jim Murchison**, president, and **W.N. Guild**, executive vice president, is operating the TAXI I, its 12.8-meter-long (about 42 feet), aluminum launch, out of Port Aransas. The twin-screw, diesel vessel can carry 2,800 kilos (about 6,173 pounds) of supplies, plus six passengers, and is fully insured.

Additional information can be obtained by contacting your steamship agent or by writing to **W.N. Guild**, P.O. Box 4720, Corpus Christi, Texas 78408.

What's up dock?

Tracor Marine's new 500-foot, 10,000 ton drydock—that's what's up, kind sir, (or madam, if you please). It's coming in December just in time for the major overhauls of the year, right? It puts us, and sunny South Florida, in a new market for ship over-

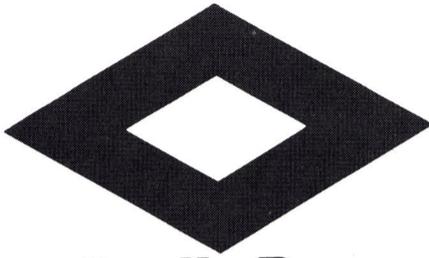
hauls. Before you decide where your ship's having its next facelift, call us.

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Over 60 years of service.

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Tugs CAPE HENRY 3500 hp and CAVALIER 2360 hp docking SEALAND MARKET

**Paul Atkinson Retires,
Peter Hepp Elected
Sun Ship President**

President of Sun Shipbuilding and Dry Dock Co., Chester, Pa., **Paul E. Atkinson**, after 35 years of employment, has announced his intention to retire from the company at year end. To make the transfer of authority as smooth as possible, **Mr. Atkinson** submitted his immediate resignation.

The board accepted **Mr. Atkinson's** resignation with regret and elected **Peter S. Hepp** president.

Mr. Hepp was born in Sandusky, Ohio on February 5, 1929. He is a graduate of the University of Pennsylvania with a B.S. degree in chemical engineering, and a Sloan Fellow and graduate of Massachusetts Institute of Technology with an M.S. degree in industrial management.

He joined Sun Oil Company in 1950 as a student engineer and

has held posts in the manufacturing, research and development, and product group areas.

In July 1972, he was named vice president and member of the board of Sun Oil Co. Limited in Toronto, with responsibility for marketing, manufacturing, and materials management. In July 1974, he was appointed vice president, development and planning, Products Group, for Sun Oil in Philadelphia, Pa.

In August 1975, he joined Sun

Shipbuilding and Dry Dock Co., a Sun Company subsidiary, as executive vice president and director. In that post, **Mr. Hepp** was responsible for planning and strategy, materials management, ship repair sales and industrial products. He also had responsibility for legal affairs in certain other staff functions.

In September 1977, he was elected president by the shipyard's board of directors.



Peter S. Hepp

Mr. Hepp is currently a member of the board of directors of Alaska Bulk Carriers, Inc., and a member of the board of trustees of Delaware County Community College.

He is a past member of the boards of directors of Sun Oil Company (Pa.), and SunOlin Chemical Company.

He holds three patents in the oil refining field.



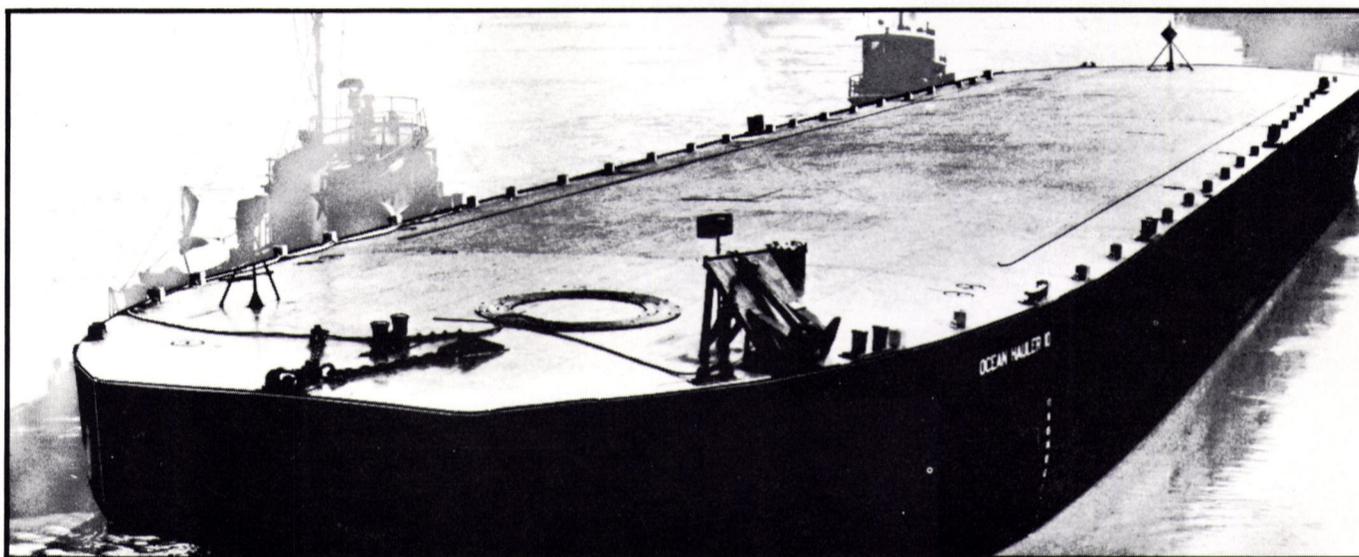
Paul E. Atkinson

When **Mr. Atkinson** was appointed to the presidency of Sun Shipbuilding and Dry Dock Co. in July 1961, he brought with him a wide range of experience and knowledge of both the industry and the company.

Born on June 21, 1921, at Mineola, N.Y., he attended Hempstead High School. In 1942, he graduated from Webb Institute of Naval Architecture, and immediately joined Sun Shipbuilding and Dry Dock Co., where he worked first in the Production Department. He progressed through a variety of assignments in the yard, and in 1956 was appointed vice president and director of operations.

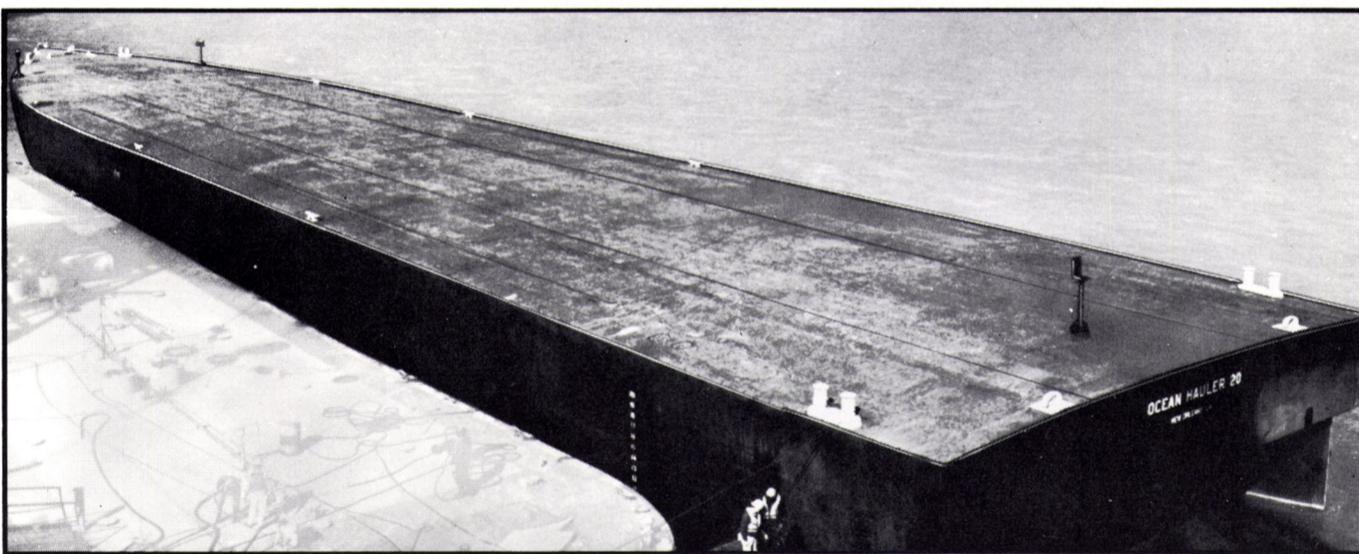
He is a member of the American Bureau of Shipping and the American Committee of Lloyd's Register of Shipping. He is a vice president of The Society of Naval Architects and Marine Engineers, and a director of the Shipbuilders Council of America. Locally, he is a member of the board of directors of The Penjerdel Corporation.

ALL OCEANS



OCEAN HAULER #10

TYPE: Deck Cargo Barge **LENGTH:** 305.1' **BREADTH:** 68.1' **DEPTH:** 23.9'
CARGO CAPACITY: 6500 Short tons at 16'6" Draft **FLAG:** United States



OCEAN HAULER #20

TYPE: Deck Cargo Barge **LENGTH:** 382.5' **BEAM:** 68.0' **DEPTH:** 24'
CARGO CAPACITY: 9500 Short tons at 18'10" Draft **FLAG:** United States

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CHARLES A. ANDREWS, JR.
PHONE (504) 524-0611
TELEX: 58205

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If something goes wrong out here,



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The sea respects no one — least of all the weak. She demands respect and receives it from those who live on her. We at Leslie Co. understand this and have made our products with the quality and reliability necessary for marine service for over 75 years. Quality and reliability are designed into each product. Leslie's 3-way rotary valve was created specifically for by-pass temperature control systems in marine applications. It requires low operating forces so smaller actuators may be used. Additionally, the 3-way boasts higher overall flow capacities — nearly double those of similar sized common type valves — resulting in extremely low pressure losses or a smaller valve size. These factors mean that systems using the 3-way show lower initial costs than those using other types of valves. Long life, reliability and lower cost make the Leslie 3-way rotary valve your best choice for by-pass temperature control applications. For more detailed information write today for bulletin 10/7.1.1 or contact your local Leslie Co. representative.



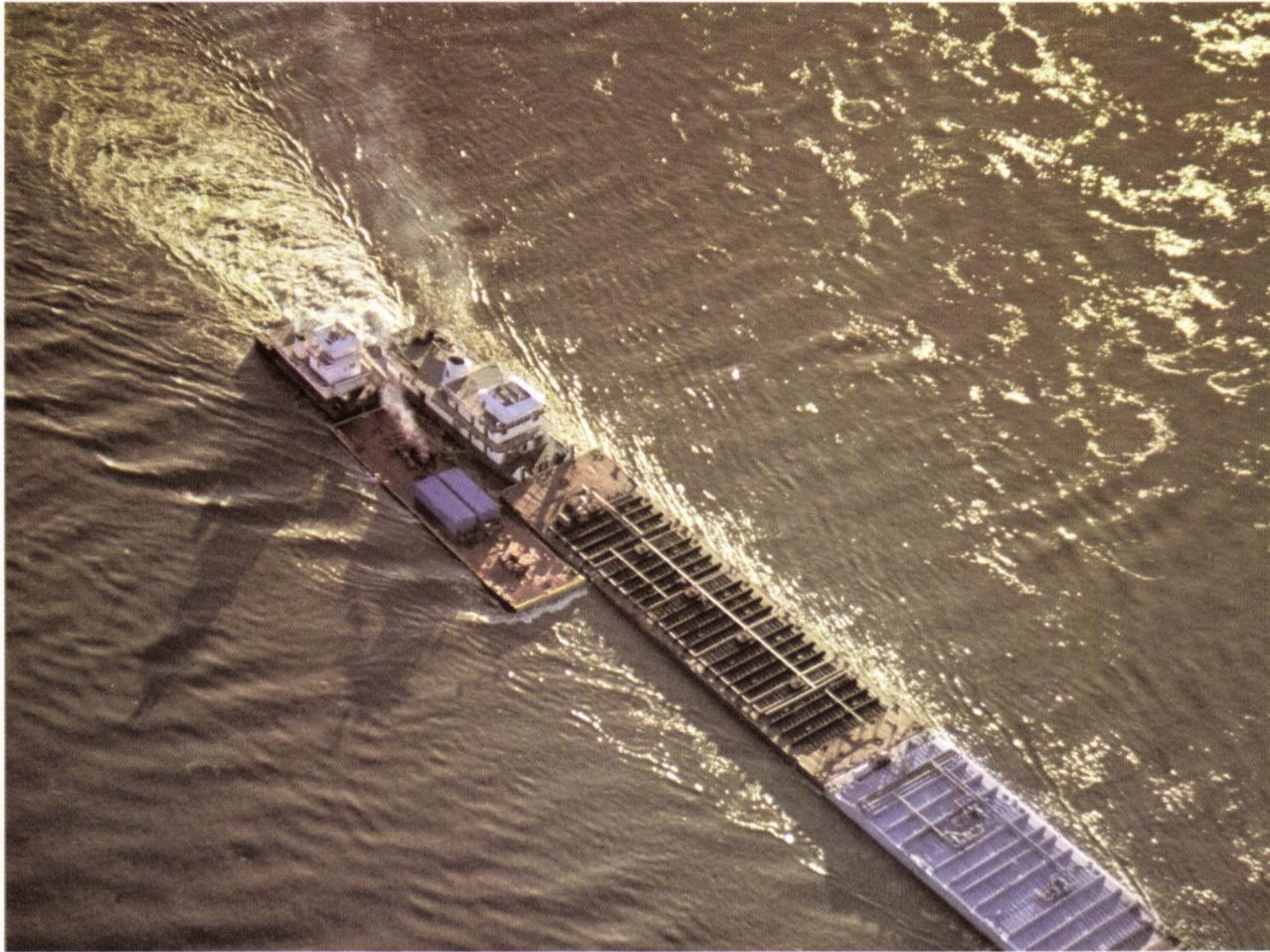
LESLIE CO.

Parsippany, New Jersey 07054

How Shell's Tornus keep thousands of work boats



Oil has helped churning ahead for over ten years.



Engines in hard-working inland waterways towboats, (above), and ocean-going tugs (left) have their work cut out for them. So does the engine oil. High-dispersancy Tornus Oil protects main engines against wear, helps promote operating efficiency.

Since 1965, Tornus Oil has been helping tugs and towboats stay on the job in oceans, harbors, the Gulf and inland waterways. There's good reason why.

Look at the critical engine parts below, photographed after extended periods of service. All were on Tornus Oil for 18,000 to 23,000 hours. All showed normal wear and were exceptionally clean and free of power-robbing deposits.

With Tornus, the oil gets dirty, the engine stays clean. And cleanliness is extremely important in keeping power up and fuel consumption down.

Caprinus® R Oil

may help your fleet even more.

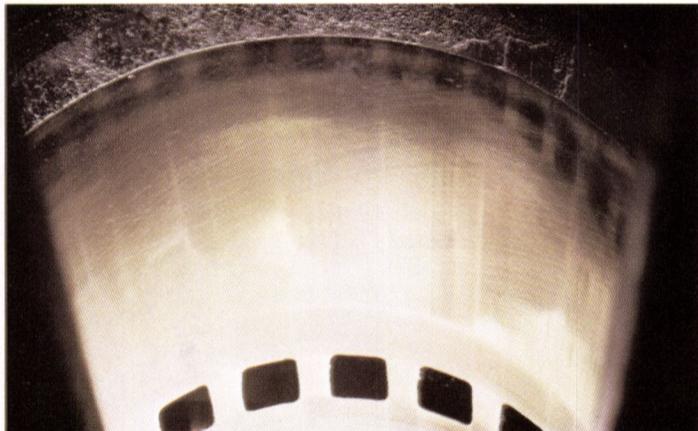
Shell's Caprinus R Oil can help extend oil drain intervals *indefinitely* in EMD power, and stretch the service life of oil filters. It offers excellent alkalinity retention to combat corrosive combustion products and help reduce frequency of overhauls. Caprinus R is Shell's answer to the need for extra high performance in modern high-output, medium-speed diesels.

Get all the facts. Write for our brochures on Tornus Oil and Caprinus R Oil. There's information in them that could help you trim operating costs.

Write Shell Oil Company, Mgr. Commercial Communications, One Shell Plaza, Houston, Texas 77002.



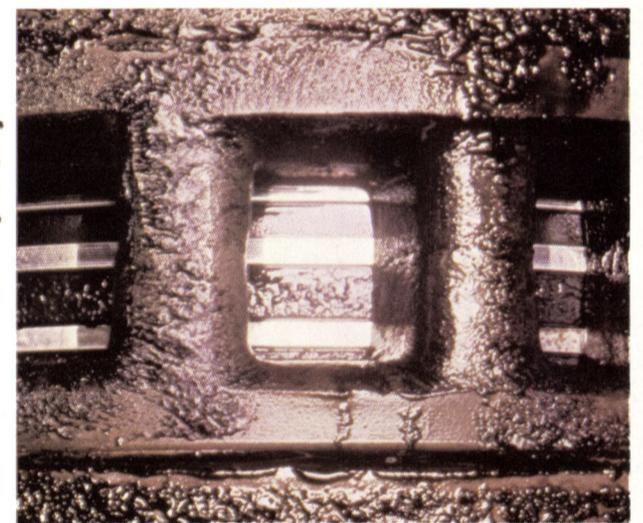
Come to Shell for answers



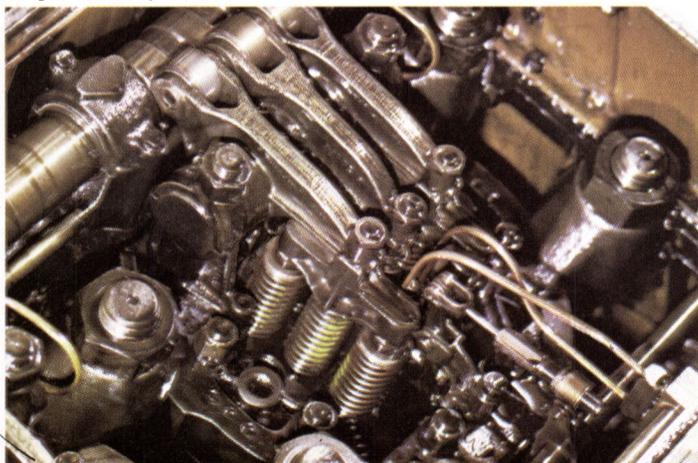
After 18,864 hours this cylinder liner from an EMD-12 645 E5 still shows original crosshatch marks. A tribute to the excellent wear protection of Shell Tornus Oil.



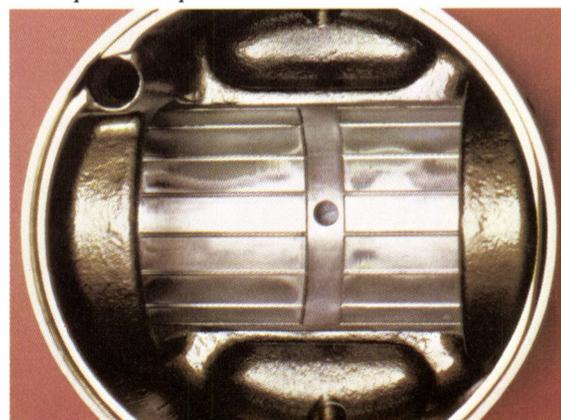
After over 23,000 hours, piston #1 of the starboard engine of an EMD 16-645 E7 shows light lacquer on skirt; rings in good condition, none stuck; only normal drag lines. Tornus Oil fights wear and lacquer buildup.



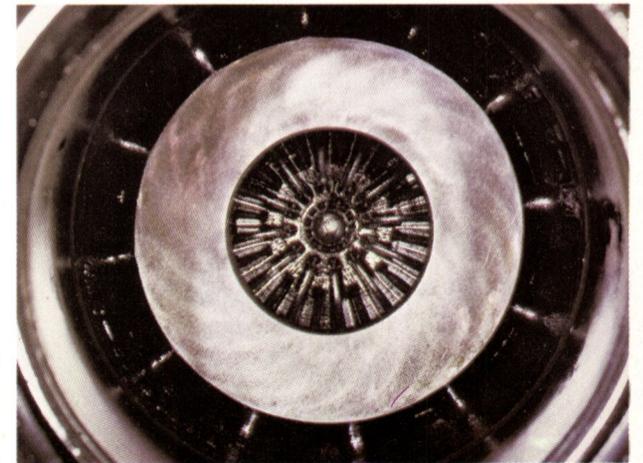
Ports are wide open from EMD 645 E with 20,000 engine hours on Tornus Oil. No deposits. Rings in good condition without need for replacement.



In this top deck of an EMD 645's port engine, note the highly polished appearance of cams and followers, the clearly visible green paint on the spring. Yet this engine has never received an oil changeout in 18,852 hours.



Much of the lead overlay is still intact on this wrist pin bushing from an EMD-12 645 E5 after 18,864 engine hours. No feathering of silver into the grooves. Tornus Oil has provided excellent lubrication.



From the same engine as the wrist pin bushing, this piston undercrown is clean, free of deposits. Tornus Oil resists sludge, lacquer and carbon deposition. This promotes cooler running pistons.

Zapata Names Four Senior Executives To New Posts

Zapata Corporation, Zapata Tower, P.O. Box 4240, Houston, Texas 77001, has announced that its board of directors has elected four senior corporate executives to new posts.

Zapata said that **Ronald C. Lassiter** and **Michael R. Naess**, who

have been executive vice presidents and chief operating officers of the company's natural resource products and services groups, respectively, have been named senior executive vice presidents. **Mr. Lassiter** will continue to head the products group, which includes copper and coal mining, as well as menhaden, anchovy and tuna fishing. **Mr. Naess** will remain responsible for the services group, which involves offshore drilling,

marine services, bulk shipping, construction and dredging.

The company said that **Robert B. Wall**, senior vice president and chief financial officer, has been promoted to executive vice president and chief financial officer. **Paul L. Kelly**, vice president-administration, has been promoted to senior vice president-corporate affairs. Under **Mr. Wall** are the company's accounting, treasury and tax departments, and invest-

tor relations, while **Mr. Kelly** is responsible for legal affairs, the corporate secretary function, and governmental, public and employee relations.

Booklet Describes Vinyl Coatings For Corrosion Control

A new 20-page, four-color booklet from Union Carbide Corporation discusses the use of vinyl maintenance paints for protecting steel and other substrates from corrosion. The coatings described are one-package systems that can be formulated from solution vinyl resins to comply with current air pollution control regulations, and be applied in as few as one or two coats.

The differences between conventional and high-build vinyl paints, and between vinyl primers and topcoats, are explained in the booklet. Also summarized are the factors involved in choosing zinc-rich or other primers which meet particular requirements for vinyl maintenance systems. In addition, there is a section that points out where not to use vinyl paints.

Tips on writing specifications for high-performance vinyl systems are presented. An aid to evaluating paint failure is provided in the form of a table that lists particular types of failure, and indicates their possible causes.

A section on using vinyl paints covers surface preparation, application methods and thinning precautions.

Copies of "Vinyl Coatings for Corrosion Control," designated F-46055, can be obtained by writing to **J.L. Shalhoup**, Union Carbide Corporation, Coatings Materials, 270 Park Avenue, New York, N.Y. 10017.

Rhode Island Shipyard Appoints Roland Marine

Michael Collins, executive vice president of Newport Ship Yard, Inc., 379 Thames Street, Newport, R.I. 02840, has announced the appointment of **Roland Marine, Inc.** as sales representative for both the East and Gulf Coasts. **Roland Marine**, with offices in New York, N.Y., and Houston, Texas, will serve as direct liaison to the yard, and will provide a source of immediate response to inquiries for specific services as relates to Newport Ship Yard's capabilities in both the new construction and repairs areas.

Newport Ship Yard, one of the country's oldest operating marine firms, was founded in 1834, and has since grown in capabilities. They have two marine railways, capable of handling vessels up to 330 feet in overall length and 63 feet in beam.

Specific information may be obtained from **Lawrence J. Trudeau**, **Roland Marine, Inc.**, One State Street Plaza, New York, N.Y. 10004.

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At Diamond we manufacture material handling equipment. We've been doing it for more than a quarter of a century now, and our people have been in on some of the major developments in the crane industry.

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So, when it comes time to shop around for material handling equipment, look for someone who'll keep you happy after the sale!

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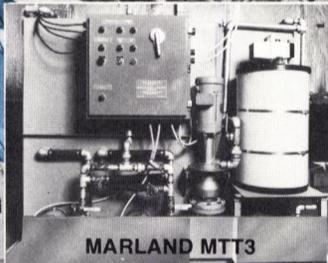
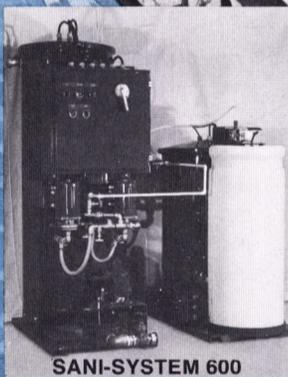
Among the companies that have purchased Clear Water equipment are: Getty Oil, Marine Transport Lines, NOAA, Mobil Oil, American Export Lines, Moran Towing, McAllister Towing, Costa Lines, and Transoceanic Marine.

Clear Water marine sewage treatment systems have set the standard for reliability, simplicity of automatic operation, compactness and minimal installation and maintenance cost. Whether it's a workboat or VLCC, Argo Marine, authorized distributor for Clear Water, will deliver exactly the right system.

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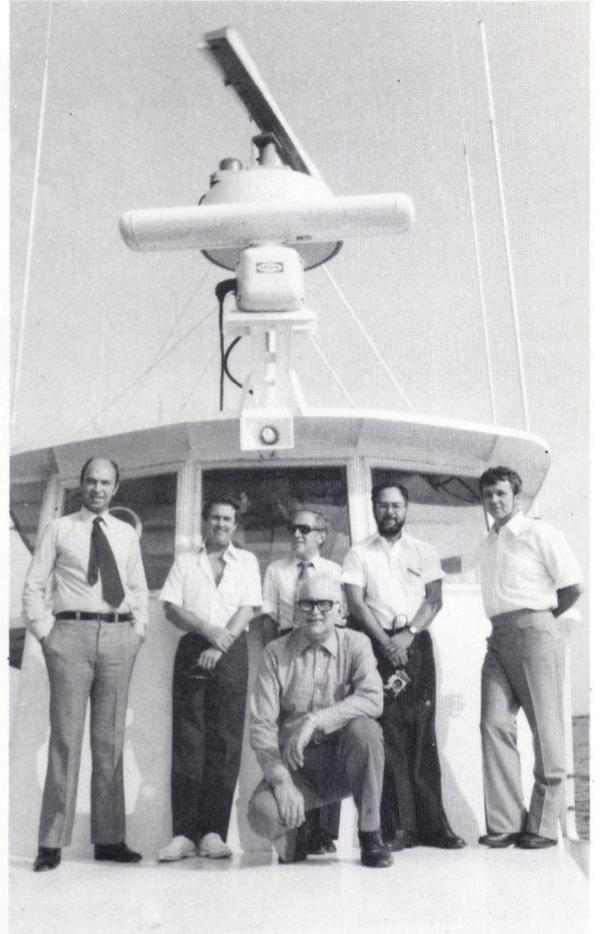
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CLASS LEADER GOES TO SEA — The guided missile frigate Oliver Hazard Perry (FFG7) cast off from the Bath Iron Works and set to sea Tuesday, September 27, on her first sea trials. The gas turbine-powered ship is the prototype of a new class of escort combatants which the Navy expects to eventually number more than 70 ships. BIW presently holds contracts for eight additional FFGs, and options on three more. During this three-day set of preliminary trials, the Perry's home port was Portland's Hussey Sound before returning to the shipyard. Additional trials are scheduled prior to Navy acceptance of the ship.



ALL ABOARD — Several of Raytheon Marine Company's Latin American dealers took a moment for photos during the electronic firm's recent sales meeting at its headquarters in Manchester, N.H. Shown aboard the Raytheon test vessel Walter E. Phipps, are from left: **Jorge Scrigna** of Rayo Electronica Ltda., Argentina; **Richard V. Warden**, president of Raytheon Marine Company; **Jaime Rozenblum**, also of Rayo Electronica; **Claudio Propper** (kneeling) of Electronica Ltda., in Chile; **Cesar Davila** of Samuel Davila, S.A., in Peru, and **Herb Myers** of Radar Electric in Seattle, Wash.

This announcement appears as a matter of record only.

\$19,604,000

Leveraged Lease Ship Financing

Biehl Offshore, Inc.

(Bareboat Charterer)

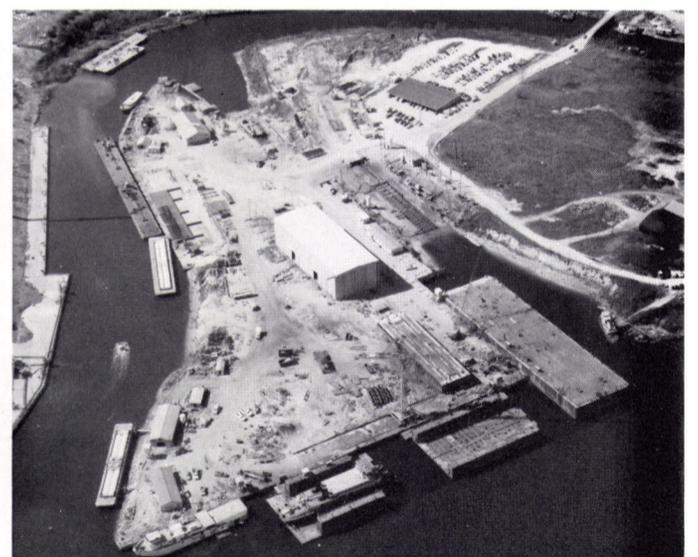
Smit-Lloyd B.V.

(Time Charterer)

We have arranged this 15-year financing, including the placement of \$13,715,000 of United States Government Guaranteed Ship Financing Bonds and \$5,889,000 of lease equity interests, for the acquisition and charter of two towing/anchor-handling supply vessels.

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September, 1977



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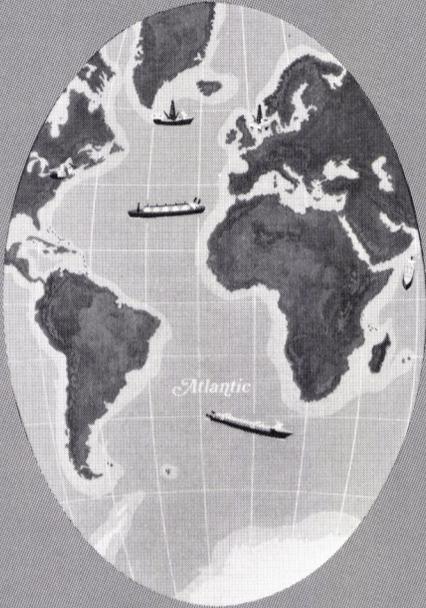
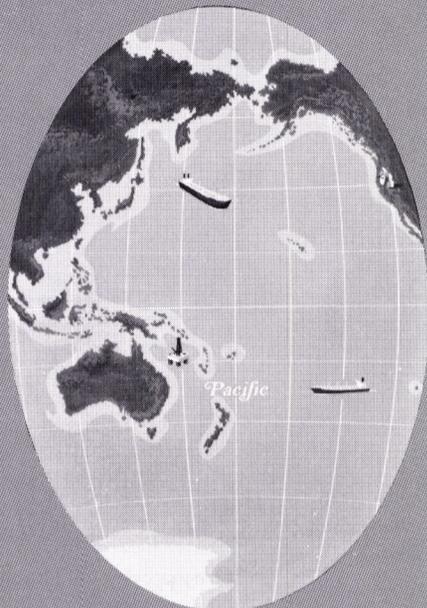
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Soon, high-quality MARISAT services will be available to ships and offshore facilities over the *entire* Indian Ocean. A new shore station in Japan, expected to be in operation in mid-1978, will provide the first commercial services via the Indian Ocean MARISAT satellite. This will close a gap in coverage of the MARISAT System between the Persian Gulf and the Strait of Malacca, and expand MARISAT public communications services to the three major oceans of the world.

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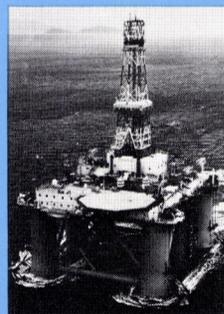
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COMSAT General-Communicators to the maritime world

**U.S. Merchant Marine
Academy Appoints
Capt. Lawrence Ferrari**



Capt. Lawrence A. Ferrari

Capt. Lawrence A. Ferrari, US-MS, has been appointed head of the Department of Mathematics and Science at the U.S. Merchant Marine Academy, Kings Point, N.Y.

Captain Ferrari is a graduate of Stevens Institute of Technol-

ogy, earning a bachelor's degree in mechanical engineering and a master's degree and doctorate in physics there.

After a year as a research associate in plasma physics at Princeton University, he joined the faculty of Queens College of the City University of New York. During 12 years of service there, he rose to the rank of full professor and served as chairman of the Physics Department from 1970 until his present assignment at Kings Point.

A native of Hackensack, N.J., Capt. Ferrari is a specialist in the field of experimental plasma physics. He has published widely in his area and is active in several professional societies.

The U.S. Merchant Marine Academy is a federal institution operated by the Maritime Administration of the U.S. Department of Commerce.

Carrington Launches Self-Unloading Cement Carrier



The M/V Goliath was designed by M.J. Doherty & Co. of Sydney, Australia, and is equipped with bow and stern thrusters to assist in berthing operations.

Carrington Slipways Pty. Ltd., Old Punt Road, Tomago, N.S.W., Australia, on September 17 launched a self-unloading cement carrier. Named for the owning company, the M/V Goliath was christened by Lady Patricia Somerset, wife of Sir Henry Somerset, C.B.E., chairman of Goliath Cement Holdings Ltd.

The vessel is a 4,000-ton bulk cement carrier designed to receive bulk cement from a shore installation at the rate of 500 tons/hour and discharge to a location ashore at the rate of 400 tons/hour. Discharge will be effected by cement-handling equipment installed on the ship.

The Goliath's design incorporates self-tensioning mooring equipment and bridge control of machinery. The engine room is approved for Periodical Unmanned Operation. 500-hp bow and stern thrusters are included to assist in berthing operations.

The main engine is a 4,250-hp Mitsubishi UET marine diesel en-

gine direct coupled to a single fixed-pitch propeller. Controls for the bow thruster, stern thruster, main engine and rudder are located in the wheelhouse, and complete instrumentation allows the vessel to be completely operated from this position.

The M/V Goliath was built by Carrington Slipways, shipbuilders of Tomago, to working drawings supplied by M.J. Doherty & Co. of Sydney, Naval Architects.

Single berth cabins, amenity spaces for both officers and crew, operational and navigational quarters are fully air-conditioned. Structure and furnishings are manufactured with easily maintainable finishes to provide a high standard of accommodation throughout.

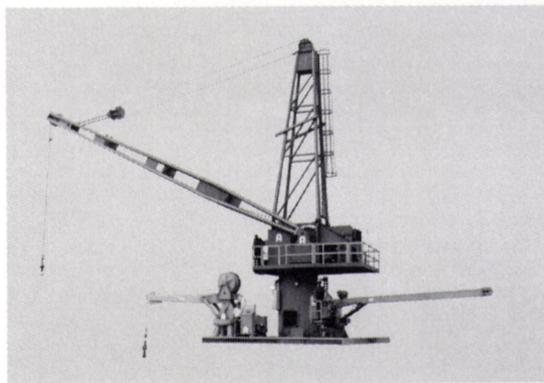
The M/V Goliath has an overall length of approximately 312 feet, a molded breadth of 46 feet, draft to designed W.L. of 17 feet, a total deadweight tonnage of 4,020 at 19-foot draft, and a mean trial speed of 14 knots.

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Appleton Marine knows your problem... unless equipment is designed and manufactured to your specifications you risk compromising your system's performance and reliability. Give us your specs...we'll use our engineering experience and manufacturing flexibility to design and build deck machinery to fit your exact requirements.

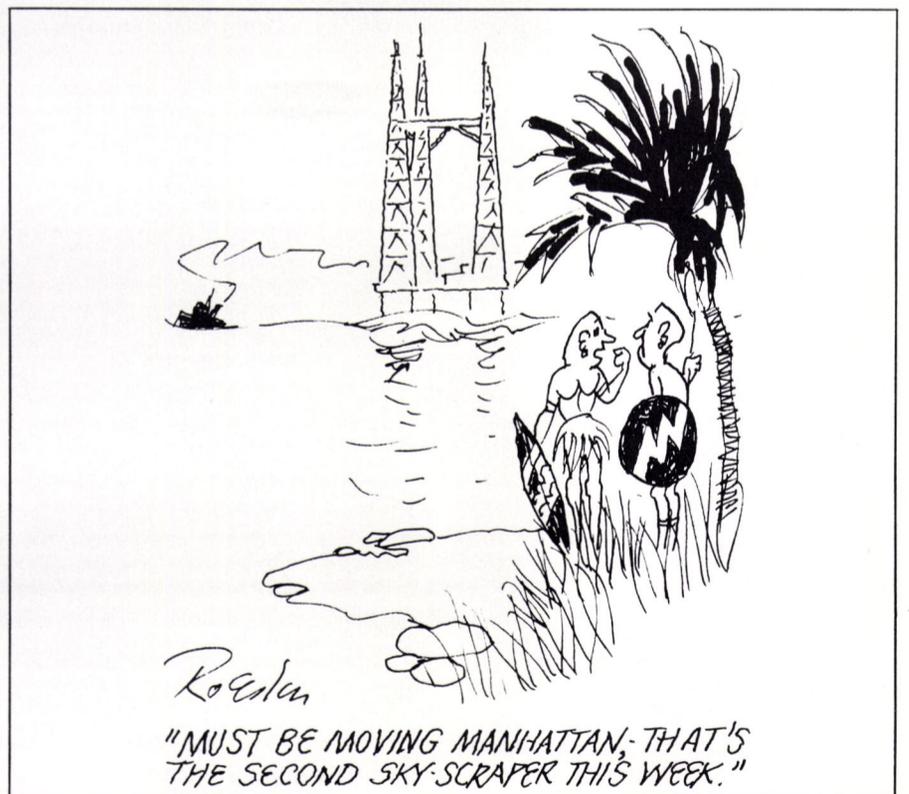
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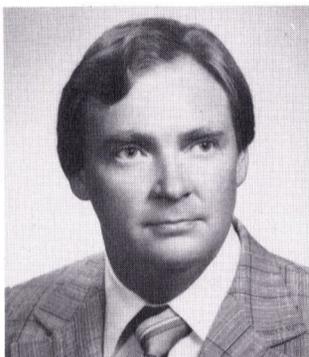


Bird-Johnson Appoints National And Regional Sales Managers

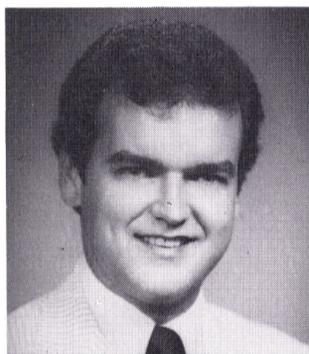
Bird-Johnson Company, 110 Norfolk Street, Walpole, Mass. 02081, a major U.S. supplier of marine propulsion equipment, has realigned its sales organization by appointing a new national sales manager and two regional managers.



Ole H. Midttun



William T. Couturier



Gary W. Dayton

Ole H. Midttun has been appointed national sales manager of the Marine Division, reporting to Francis L. Narbut, manager, customer services. Mr. Midttun brings 13 years of company experience to the position, including nine years as applications engineer and assistant sales manager, and four years as manager of the Technical Department. He previously served for five years as a staff engineer for Bethlehem Steel Corporation. Mr. Midttun holds a Bachelor of Science degree in industrial and civil engineering from the University of Rhode Island, as well as a Master of Science degree in mechanical engineering from Northeastern University. Mr. Midttun is a member of The Society of Naval Architects and Marine Engineers.

William T. Couturier has been appointed East Coast regional manager, based in Walpole. He joined Bird-Johnson Company in 1973 as an applications engineer, and was appointed sales engineer

for the East Coast in 1975. Prior to joining Bird-Johnson Company, Mr. Couturier was employed as a designer for Allstates Engineering, and as an applications engineer/sales representative for an international supplier of marine propulsion equipment. Mr. Couturier is an associate member of The Society of Naval Architects and Marine Engineers.

Gary W. Dayton has been appointed Gulf Coast regional manager, based at Bird-Johnson Com-

pany's regional office at 6430 Hillcroft, Houston, Texas. He joined Bird-Johnson Company in 1973 as an applications engineer, and in 1975 assumed the duties of Gulf Coast sales engineer. Mr. Dayton's background includes a Bachelor of Science degree in marine and electrical engineering from the Massachusetts Maritime Academy, a U.S. Coast Guard license as a second assistant engineer for steam vessels, and third assistant engineer's license for

diesel vessels. He sailed on his license for two years prior to coming ashore as a boiler and machinery inspector for a major national insurance company. Mr. Dayton is an associate member of The Society of Naval Architects and Marine Engineers.

Harry H. Kendall and Herb I. Chatterton, well-organized members of the organization's sales team, will continue to cover the Great Lakes and West Coast regions, respectively.

We won't promise you the Wizard of Oz, but we can deliver the Tin Man.



We don't give you a lot of overblown promises at Savannah Shipyard. But we can supply some pretty talented people.

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Ro/Ro Shipping—An Appraisal Of Its Role In Dry Cargo Trade

Although it is only recently that so much attention has been focused on the prospects for ro/ro shipping, this type of handling has, in fact, been employed for a number of years on both short-sea and deepsea trades—and with every evidence of success. For example, the advantages of direct ship-to-shore links for short-distance ferry operations were demonstrated as much as 30 years ago, although it was not until the mid-1960s that ro/ro operations really became established on a commercial basis, gaining something of a stronghold in Northern European trades. The introduction of the first long-distance ro/ro service on the North Atlantic came slightly later, in 1967, owing much to Scandinavian experience and influence. Since that time, ro/ro operations have been introduced onto most established unitized trades, e.g., Europe/Australia, Australia/Japan, Australia/West Coast U.S., etc.

Basically, the considerable growth of interest in ro/ro so late in the day can be regarded in part as the product of the Middle East situation, where the ability of ro/ro vessels to operate under otherwise impossibly congested conditions has tended to highlight the advantages of this shipping system over others—in brief, a considerable versatility with regard to cargo type and an ability to operate independently of proper terminals or port equipment. At present, it is certainly the most practical way of overcoming the immediate problems of port congestion in this area, but it is a very costly solution, involving return journeys in ballast and the uneconomic use of tonnage designed for other trades.

However, the demands of this trade have boosted what appears to have been a faltering market for small- and medium-sized ro/ro vessels, and have encouraged a number of prominent liner operators to invest in large newbuilding tonnage for trades into the area. Protagonists of ro/ro shipping therefore tend to regard this as the beginning of a period of expansion, in which it will continue to make increasing inroads into deepsea general cargo operations. Detractors, however, look on the situation with considerable skepticism. They feel that present usage can by no means guarantee ro/ro a permanent foothold even on Middle East trades, when faced with the competition from cellular lines which should follow the commissioning of new port facilities, and this view tends to be supported by the widely held belief that poor utilization of capacity makes ro/ro less economic over long distances.

How valuable then is ro/ro shipping in the present world market? Certainly its present use on both deepsea and shortsea trades, its proven usefulness under difficult conditions, and the considerable ingenuity which is continually being expended on the design of these ships would all suggest a growing importance, justifying an in-depth assessment of the role of this type of vessel in dry cargo trade. As its title suggests, this is the main purpose of the present survey—"Ro/Ro Shipping—An Appraisal of its Role in Dry Cargo Trade"—although it is also concerned with other aspects of the acquisition and operation of this type of ship. It does also attempt to offer some answer to the questions posed above, i.e., can ro/ro compete with cellular or even general cargo vessels on long-distance trades, or will it continue to be primarily a shortsea phenomenon?

The number of ro/ro vessels in operation is increasing rapidly, and in the shortsea trade, certainly, their future would seem assured. In Northern Europe, for instance, there is evidence of a steadily rising demand for ro/ro capacity, which has encouraged investment in new freight tonnage, which is operated alongside a growing fleet of new generation, large multipurpose passenger/vehicle ferries. There is also an increasing interest worldwide in small ro/ro tonnage for shortsea, coastal and feeder services, notably among third world countries in South America, Asia, North Africa, etc.

It is in the deepsea trades, however, that the prospects for ro/ro are more uncertain. With cellular vessels predominating on established unitized trades, they account for only some 15-20 percent of total unit handling capacity at present. While the orderbook indicates a growing interest in the large ship sector of the ro/ro market, the weight of containership tonnage due to come on-stream makes it unlikely that its position will change, at least in the next few years. Containers are evidently the predominant element in unitized trade, and an analysis of unit costs on any specific trade reveals ro/ro shipping at a disadvantage, which increases with distance. However, for a large number of non-containerizable cargoes which lend themselves to ro/ro handling, e.g., heavy or awkward loads, timber, wheeled cargo, etc., ro/ro is generally recognized as providing a fast, efficient and therefore economic means of transportation. It is impossible to deny that ro/ro does have a future on the deepsea trades, but it will necessarily be limited.

Summarizing the contents of the HPD survey "Ro/Ro Shipping—An Appraisal of its Role in Dry Cargo Trade," it covers, in its 122 pages of text, tables and charts:

The development of ro/ro as part of a widespread movement toward unitization, and a brief comparison of ro/ro with other modes of unit transportation—containerships, barge carriers, pallet ships.

The growth of the ro/ro fleet and the impetus behind its development, identifying the main centers of interest in this type of tonnage, and the extension of operational patterns, which has had a fundamental influence on design.

The various classes of ro/ro vessel, ranging from the shortsea combined passenger/freight ferry and pure ro/ro-cargo ferry, to the highly developed deepsea designs, including discussion of dimensions, speed, cargo-handling capability, etc., and considering the difference in employment for each of these types of vessel.

The potential size of the ro/ro fleet, examining trends in newbuilding orders, and in the potential employment of contracted tonnage.

An examination of the shortsea ro/ro operations, looking at the ownership of vessels, major routes and cargo types, and the progress which has been made in ship design to meet the demands of these trades, with special reference to the Northern European operation.

A review of the major deepsea trades, and the vessels which

have been built—or are being built—to serve them. Cargo capacity, vessel dimensions and other vessel characteristics are detailed in a systematic manner, and the contribution of ro/ro space to these trades, by comparison with cellular capacity, is discussed.

The development of ro/ro services into congested ports, describing the onset of congestion and the usefulness of ro/ro handling and indicating the extent of ro/ro and other services into the Middle East and Nigeria.

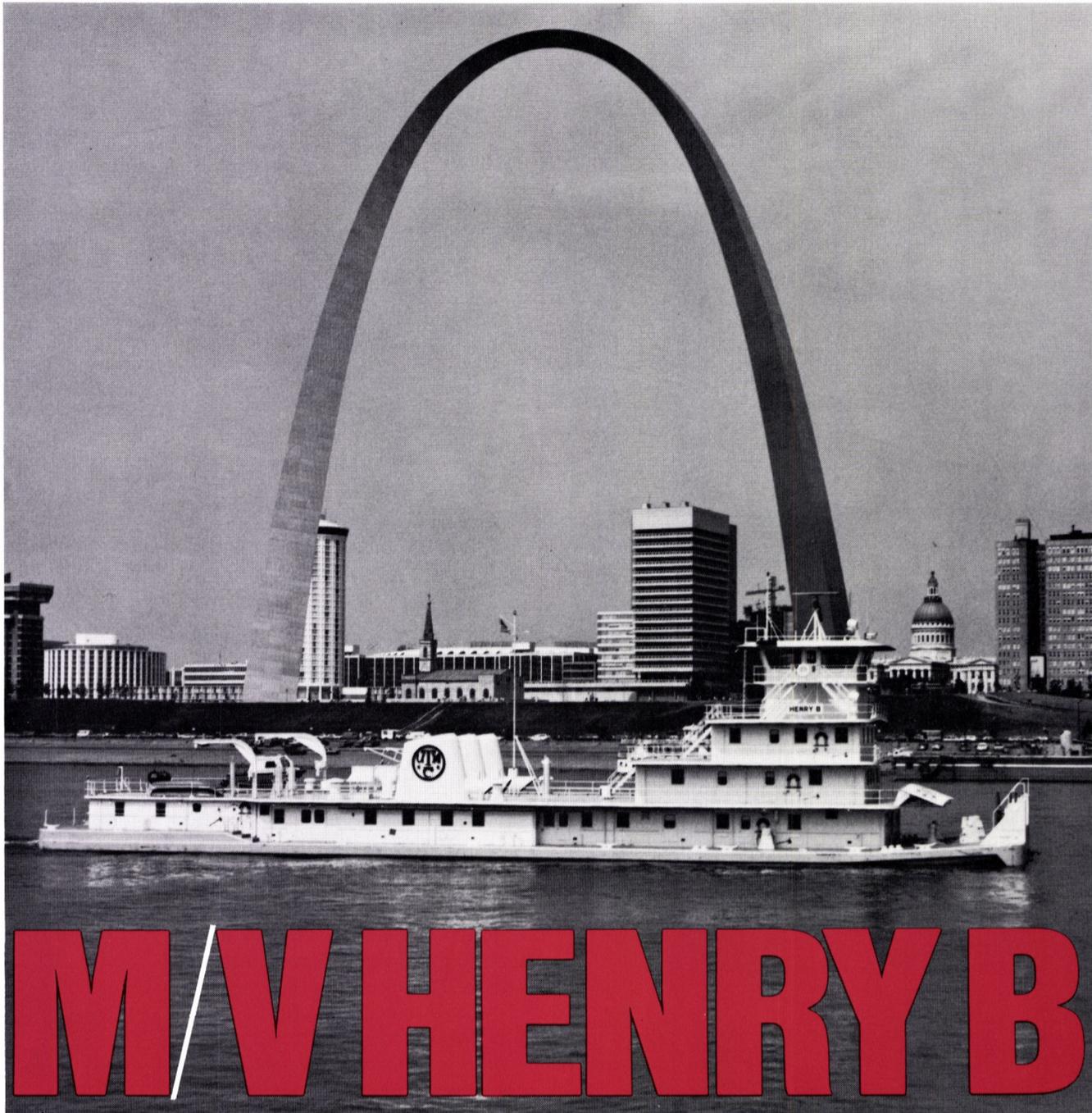
The cost of acquiring ro/ro vessels—with special reference to ro/ro cargo vessels, both deepsea and shortsea types—including discussion of newbuilding and second-hand costs and comparing them with equivalent prices for containerships and general cargo vessels.

The operational outgoings experienced by operators of ro/ro tonnage, including items such as manning, insurance, repairs and maintenance, etc., and offering comparison with costs for other vessel types.

The trading patterns of ro/ro vessels, examining vessel efficiency, possible shortcomings in this type of tonnage through examining their performance on various trades, and offering comparison with cellular and other tonnage.

"Ro/Ro Shipping—An Appraisal of its Role in Dry Cargo Trade," priced at U.S. \$160 for all overseas orders, or £75 for U.K. orders, is available from HPD Shipping Publications, 34 Brook Street, Mayfair, London W1Y 2LL, England.





UPPER MISS' NO.3

Third of the latest series of Hydrodyne Hull towboats, built for Upper Mississippi Towing Corporation, is the new M/V Henry B. Like its two recent predecessors, the M/V Steve T, and the M/V Gale C, the Henry B is a big (200 feet), powerful (8400 hp) and finely appointed towboat, a good example of St. Louis Ship's precision engineering and quality construction. The Henry B is a **HYDRODYNE** towboat.

Hydrodynes are members of a special class of towboats, built only by St. Louis Ship, and embodying an exclusive combination of the optimum in hull lines, nozzle and propeller design, and rudder configuration. This concept provides more push and greater maneuverability, resulting in substantial reductions in operating costs. Let's talk about *your* new Hydrodyne. Call us at (314) 638-4000.



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**Senior USCG Advisor
Robert Lakey Joins
Helge Ringdal, Inc.**

Senior Technical Advisor to the U.S. Coast Guard in Washington, D.C., **Robert J. Lakey**, has resigned from the Coast Guard to join the marine consulting, brokering and trading firm Helge Ringdal, Inc., 1100 Milam, Suite 2775, Houston, Texas 77002.

Mr. Lakey, a native Texan, will

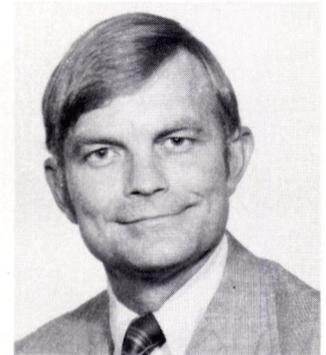
head up Ringdal's new Marine Consulting Department as vice president. The new division will offer expert technical, regulatory and commercial advice on marine transportation, with emphasis on the transportation of energy (LPG, LNG and oil), and chemicals.

Helge Ringdal, Inc., a subsidiary of Helge Ringdal A/S, Oslo, Norway, has been in operation in Houston since 1975. The company

has arranged annual seminars for the U.S. oil and gas industry on marine transportation of LPG. It has acted as maritime consultants and advisors to several major U.S. corporations, and has been instrumental in putting together a number of investment projects in the field of offshore drilling and exploration.

The company operates internationally through their own offices and a network of correspondents worldwide.

In Houston, the company acts as marine consultants, shipbrokers and offshore investment brokers. The company also arranges project financing in cooperation with banks and investors worldwide.



Robert J. Lakey

The new vice president, **Robert J. Lakey**, is presently chairman of the Inter-Governmental Maritime Consultative Organization (IMCO) Sub-Committee on Bulk Chemicals. He has been actively involved in President Carter's tanker safety initiatives, as well as the development and implementation of U.S. policies concerned with IMCO participation and the IMCO Code for Liquefied Gas Tankers, IMCO Code for Chemical Tankers, and also represented the U.S. in bilateral and technical discussions on tanker safety internationally.

**Thomas J. Briskey
Elected President
Jefferson Electric Corp.**



Thomas J. Briskey

Thomas J. Briskey has been elected president of Jefferson Electric Corporation of Hoboken, N.J. A graduate of the U.S. Merchant Marine Academy, Mr. Briskey has accumulated over 30 years' experience in the marine field.

He was formerly with Engine Specialties Corp., Tate Engineering Co. of Baltimore, Md., and for the past 10 years vice president of Merrin Electric Co. He is a member of The Society of Naval Architects and Marine Engineers, and the New York Society of Marine Port Engineers.

Jefferson Electric, a marine-oriented contracting organization, has also been serving the industry for 30 years. They specialize in shipboard installation, conversion, and repairs of electrical systems and equipment in addition to the extensive work performed in their large shop facilities.

**We are the most
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"The world's largest manufacturer of marine coatings" is not a hollow phrase. It means that wherever you are, we are. Specifically, International Marine Coatings has 37 manufacturing plants around the world. We have agents and stock in almost every single major port, insuring on-the-spot delivery and service. Our experience encompasses the broadest possible spectrum of coating systems... for all world cargoes, for all waters, in all climates. Moreover, each of our sales and service representatives is fully experienced in all phases of new ship construction and M&R. We are indeed the most global marine coatings company. And we have almost 100 years of knowledge that we'd like to share with you.

International Marine Coatings

Executive Sales Office: 17 Battery Place North, New York, NY 10004
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OOCL And Partners In Saudi Arabia Venture

Orient Overseas Container Line (OOCL) has successfully concluded negotiations for a substantial participation in a container terminal and trucking venture in Saudi Arabia under the name of Saudi Container Services Company.

Other partners in the joint venture include the General Contracting Co., an affiliate of Transporting and Trading Co. Inc., and Seatrain International S.A.

OOCL plans to begin a service between the Far East and the Middle East in the second or third quarter of 1978. The new facilities, being established in Dammam, Saudi Arabia, will be used as the base for the line's operations there. This represents the first step in the planned penetration by OOCL into the Middle East in the field of container shipping.

Five Companies Form Technology Group To Build Canadian Ships

Three high-technology marine systems design companies and two major shipyards have agreed to work exclusively as a group to address the forthcoming Canadian Department of National Defence requirement for new patrol frigates and the associated export potential which will follow.

At a meeting in Montreal, the chief executives of Burrard Dry Dock Company Limited, Canadian Vickers Limited, Davie Shipbuilding Limited, Litton Systems Canada Limited, and Y-ARD Limited signed an exclusive agreement to work together for the purpose of undertaking turnkey program management for the design, development and construction of the replacement naval vessels.

Burrard Dry Dock Company of North Vancouver, British Columbia, with its subsidiary, Yarrows Limited of Victoria, has a long and distinguished history of major construction, conversion and refit of naval ships.

The Naval Ship Design Division of Canadian Vickers, Montreal, has been involved since 1949 in the design of new construction and major conversions for the Canadian naval forces.

The background of Davie Shipbuilding of Lauzon, Quebec, spans two world wars, with emphasis on the development and construction of a variety of naval vessels, including the latest DDH-280 class ships. Davie has also been active in the field of naval mid-life conversions and refits.

Litton possesses comprehensive system engineering and program management capabilities to perform electronic and weapons systems integration, test and support.

Y-ARD of Glasgow, Scotland, is an engineering consultancy which has 30 years' experience

in design investigations, problem solving, strategic studies and project management for the Royal Navy and for overseas navies.

This newly formed group is dedicated to the advancement of Canadian marine technology, to the maximizing of industrial benefits for Canada's ship construction and allied industries, and to the expansion of Canada's future potential in the export marketplace.

Caterpillar Marine Auxiliary Systems Subject Of Brochure

Auxiliary diesel power for all shipboard requirements is the subject of a new eight-page color brochure. Brief descriptions of six different marine applications give indications why owners of cargo vessels, fishing boats, and workboats are benefiting from Cater-

pillar Diesel Engines. Caterpillar marine auxiliary systems provide dependable, efficient, economical, and high-performance power sources — followed everywhere in the world by a commitment to product support.

The brochure, Marine Auxiliary Systems, Form LEDM1417, is available by writing to **Charles H. Bolton**, Caterpillar Industrial Division, Peoria, Ill. 61629.

Revolving discs vs. solid wedge gate in marine service



American-Darling Revolving Discs features:

1. No pockets on discs to collect deposits.
2. Discs contact seats during travel to remove deposits.
3. Discs revolve with a self-cleaning action to prevent fouling on body guides.
4. Wedging action is independent of seating action for easier operation.
5. Internal parts are interchangeable and reversible for easy maintenance.

Consider these possible disadvantages of the solid wedge gate design:

1. Wedge guides in body are subject to fouling and wear due to line content deposits.
2. Buildup on seat surfaces are trapped at seating position causing leakage.
3. Since wedging and seating occur simultaneously, approximately 50% more operating force is required than for Revolving Discs design.
4. Wedge is not usually interchangeable from valve to valve. Reseating requires fitting of wedge to body seats.

On your next installation, get all the advantages. Specify American-Darling Revolving Discs gate valves. For more information, write for our bulletin.



American-Darling Valve

A Division of American Cast Iron Pipe Company
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Shipowners Seek To Enjoin Alaska State Tanker Law

James J. Reynolds, president of the American Institute of Merchant Shipping (AIMS), Washington, D.C., has announced that a lawsuit has been filed by his organization, together with Chevron USA, Inc., Atlantic Richfield Company, Exxon Corporation, Gulf Oil Corporation, International Ocean Transport Corporation, Mobil Oil Corporation, and Union Oil Company of California in the Federal District Court of Anchorage to block enforcement of the Alaska State Tanker Law and related implementing regulations which became effective Friday, September 16.

In announcing this action, Mr. Reynolds noted the existence of comprehensive preemptive Federal laws and regulations which govern the construction and operation of

tankers and provide for strict liability and full reimbursement for damages in the event an accident were to result in some damage to Alaska, its citizens and its waters. "All of the tank vessels which call at Alaska ports are in full compliance with applicable Federal requirements," he said, "but unfortunately many simply cannot meet the conflicting and arbitrary requirements in the state regulations, and thus would be prohibited from conducting normal business operations there."

The industry has taken every possible step to make Alaska aware of these difficulties, Mr. Reynolds added, including appearing at legislative hearings and the submitting of oral and written comments and recommendations on the implementing regulations while they were still in the drafting stage.

"Unfortunately, these efforts were to little avail," Mr. Reynolds pointed out. "Thus, AIMS and the seven listed tanker operators have initiated a lawsuit against Governor Jay S. Hammond and other Alaska officials, seeking a preliminary injunction to preclude enforcement of the law and regulations for the immediate future, and a final judgment declaring them to be unconstitutional and void."

The AIMS spokesman said their complaint details the direct conflicts with existing Federal law and regulations, the imposition of an undue burden upon commerce, and the interference with the Federal power to conduct foreign affairs as being the major factors underlying the unconstitutionality of the Alaska law and regulations.

Mr. Reynolds expressed hope that this matter could be "resolved promptly," and emphasized the industry's willingness to continue working closely with Federal, state and local authorities so that "the interests of all in Alaska might best be served." He did say, however, that the proliferation of conflicting and burdensome statutes which needlessly hamper the safe and efficient passage of tankers can "no longer be accepted without challenge."

Totem Ocean Trailer Elects R.B. McMillen

Totem Ocean Trailer Express, Inc. (TOTE), Pier 37, P.O. Box 24908, Seattle, Wash. 98124, has elected Robert B. McMillen president. Prior to joining TOTE, Mr. McMillen was vice president of terminals for TRANSCON, a California-based trucking company.

William B. Maling, TOTE's previous president, will continue as a director of TOTE while taking up his new assignment as vice president of Sun Company, the parent company of both TOTE and Sun Shipbuilding.

Mr. McMillen brings 17 years in the trucking terminal business to TOTE, first with Kramer Bros. Freight Lines, Detroit, Mich., and then with TRANSCON in various senior management assignments all over the United States.

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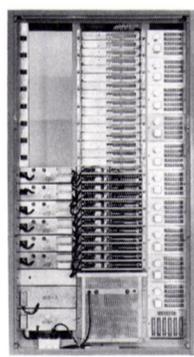
Every Hose-McCann product is precision engineered and manufactured to provide many years of dependable, trouble-free operation. The name Hose-McCann as always, stands for reliability, integrity and the highest standard of quality.



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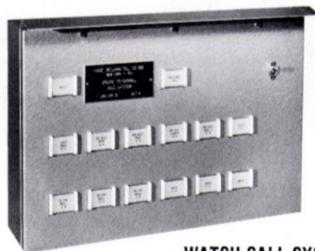
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MANAGER OF THE YEAR — The Willard Company of Costa Mesa, Calif., has named Richard Lenassi its 1977 "Manager of the Year" because of his excellent performance as the general manager of its Willard Marine Division. The division recently completed a \$3.2-million contract, the largest in the company's 20-year history, for 31 Coast Guard boats within budget and ahead of schedule. Mr. Lenassi joined Willard six years ago, after retiring from the U.S. Coast Guard with the rank of Lt. Commander. He is shown above with his wife, Pat, receiving congratulations from Jack Hochadel (right), president of The Willard Company. The Willard Company manufactures pleasure and government boats, and other reinforced plastic structures at plants in Costa Mesa and Fountain Valley.

Avondale Launches 165,000-DWT Tanker For Standard Oil (Ohio) Alaskan Service



The tanker Keystone Canyon sits in Avondale's \$26-million floating drydock prior to launching on September 10. Due to heavy rain and squalls, the ship was christened but not launched at the morning ceremonies. Later in the day after winds died down, Avondale floated the immense vessel into the Mississippi River.

Avondale Shipyards, Incorporated, New Orleans, La., a subsidiary of Ogden Corporation, recently launched the second of a series of four segregated ballast tankers for The Standard Oil Company (Ohio). The new ships will sail under charter to SPC Shipping, Inc., a wholly owned subsidiary of SOHIO.

This tanker is the Keystone Canyon, 165,000 deadweight tons, and named after a geographic area in Alaska of spectacular scenic grandeur. Her length overall is 906 feet, beam 173 feet, depth 75 feet. The operating draft of the Keystone Canyon carrying Alaskan oil is 55 feet, and her cargo capacity including 11 tanks is approximately 1,200,000 barrels. With steam propulsion and a

maximum continuous rated horsepower of 26,700 shp, the ship's service speed 80 percent MCR will be 14.1 knots full load, and 16 knots ballast.

Among the most interesting features of the Keystone Canyon are her special environmental protection and safety features, which include segregated ballast tanks, inert gas system, fixed tank-cleaning equipment, collision avoidance radar and Loran and Omega navigation systems.

While somewhat smaller than some of the tankers used to transport oil between continents, the Keystone Canyon is the largest thus far to be specially built for Alaskan service. Along with her sisterships, she will also rank as being among the safest and most

modern. The first SOHIO tanker, the Atigun Pass, was launched at Avondale on June 4, 1977, and two more will quickly follow.

Launching ceremonies began with the National Anthem, with soloist **Keith Harmeyer**, followed by a moving invocation by the associate pastor of the Saint Charles Avenue Presbyterian Church, **Dr. Walter A. Bennett**.

Edwin Hartzman, president of Avondale Shipyards, Incorporated, then took the podium to deliver a welcoming address and to introduce the distinguished guests on the launching platform.

The principal speaker for the occasion was **Frank E. Mosier**, senior vice president-marketing and refining, Standard Oil Company of Ohio. Shortly after his address, the charming sponsor of the vessel, **Mrs. Paul D. Phillips**, wife of **Paul D. Phillips**, senior vice president-finance and administration, The Standard Oil Company (Ohio), was escorted to the podium by **Mr. Hartzman** to say a few words before the moment of launch.

Mrs. Phillips then raised a silver hatchet to sever the cord that sent the champagne bottle winging down to the bow of the ship to smash against her side. One of the most interesting sights for launching guests was to see how Avondale Shipyards employed its giant \$26-million floating drydock to launch the Keystone Canyon. The ship was moved into the drydock from the building ways nearby about two weeks prior to the launching.

The Keystone Canyon will stand

out as being among the safest and most seaworthy ships in the world. A long list of modern navigational equipment to be installed includes computerized collision-avoidance instruments, weather map facsimile reproduction equipment to help avoid storms, echosounders to measure water depth, a Loran navigation system to determine the ship's position within yards by monitoring special radio signals, and an Omega navigation system to electronically fix a ship's position within two miles anywhere in the world. Inert gas systems on the new tanker will guard against danger of fire or explosion from vapors which can form in empty or partially empty oil cargo tanks.

The Keystone Canyon will be equipped with a waterless cargo tank washing system. The device uses an oil spray in the inerted tanks instead of seawater to clean oil residue from the sides of cargo tanks as they are emptied. This eliminates another potential source of water pollution.

Two main boilers instead of one will assure the tanker of maneuverability in the event of a breakdown.

Outfitting of the Keystone Canyon at Avondale will take several months, but when she enters service for her owners she will carry North Slope crude oil from Alaska to ports in the lower 48 states or for transshipment through the Panama Canal.

Avondale Shipyards, Incorporated is a subsidiary of Ogden Corporation, which operates in the major market areas of metals, transportation, and food.



At launching of the Keystone Canyon are, from left: **Edwin Hartzman**, president of Avondale Shipyards, Inc.; the sponsor, **Mrs. Paul D. Phillips**; and **Frank E. Mosier**, senior vice president, marketing and refining, The Standard Oil Company (Ohio), who delivered the principal address. The Keystone Canyon will carry Alaskan crude oil to the lower 48 states, or for transshipment through the Panama Canal.



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J.J. Henry Co., Inc. Receives \$142,000 MarAd Contract To Study Ship Steering Systems

The Maritime Administration has awarded a fixed price contract, in the amount of \$142,882, to the J.J. Henry Co., Inc., Two World Trade Center, Suite 9528, New York, N.Y. 10048, to undertake a study of reliability improvements for vessel steering systems. Under the contract, the J.J. Henry Co., Inc. will perform a thorough design analysis of three different types of vessel steering systems to identify and define deficiencies, if any, that exist in their design, specification requirements, installation criteria and/or operating practices.

In addition, the study will review the various steering system casualties and breakdowns through direct inquiry of the operating personnel of the major U.S.-flag fleet, as well as the various regulatory bodies. The purpose of this study will be to develop, if required, additional requirements for vessel steering systems that will enhance their performance and reliability.

Matson Terminals Appoints John Couch Vice President

Matson Terminals, Inc., has appointed John C. Couch to the newly established position of vice president and assistant general manager-engineering in San Francisco, Calif.

He was formerly with Matson Navigation Company as assistant to A.J. Haskell, senior vice president, in the engineering and marine operations division.

William F. Gilger, who was promoted to a vice president of Matson Terminals, Inc.,

in April, has been placed in charge of all operations.

Matson Navigation Company has named Warren N. Boyer assistant to Mr. Haskell, to succeed Mr. Couch. Mr. Boyer formerly was manager, preliminary design.

Matson Navigation Company is the parent company of Matson Terminals, Inc., which operates terminal and stevedoring facilities in Oakland, Portland, Honolulu and the Port of Los Angeles.

R.E. Derektor Delivers Tug To Great Lakes Dredge & Dock Co.

The Hoosier State, a twin-screw 556-horsepower tug, was recently completed by R.E. Derektor and Co., Dania, Fla., for the Great Lakes Dredge & Dock Co. of Chicago, Ill.

Designed by S.L. Petchul, Inc., Naval Architect, Ft. Lauderdale, Fla., the Hoosier State is now in operation in south Florida serving as a dredge tender. The hull has a length overall of 46 feet, a 16-foot beam, and a draft of 6 feet 6 inches fully loaded. Power is supplied by two 8V-71 diesel engines with 4.5 to 1 reduction gears and 52-inch-diameter four-bladed stainless-steel propellers.



The Petchul-designed Hoosier State provides control both from the pilothouse and a fly-bridge station located on top of the pilothouse.

The basic arrangement provides control both from the pilothouse and a fly-bridge station located on top of the pilothouse. A combination electric stove, refrigerator, and sink unit is provided in the pilothouse, along with suitable seating in the forecabin for dredge crew transfers.

The hull is heavily built with 5/16-inch side plate, 5/16-inch and 3/8-inch bottom plate, 4-inch by 3-inch by 5/16-inch angle frames spaced 18 inches center to center, and 7/16-inch bent plate fenders. The fuel capacity is 2,800 gallons, with 100 gallons of potable water carried in an aluminum tank.

Equipment includes radar, radiotelephone, hydraulic steering, potable water pressure set, hand and electric bilge pumps, dirty oil pump and dirty oil tank, engine room blower, skin cooling, and a 20-kw a-c diesel generator. Designed for heavy towing, the Hoosier State has proven to be an efficient tug with excellent handling characteristics.

S.L. Petchul reports that recent activities have included providing detail engineering plans to shipyards on their new construction projects, stability studies and calculations for U.S. Coast Guard certificated passenger vessels, along with providing the service of assisting shipyards in the preparation of labor-material estimates for vessels they are bidding. For this latter activity, extensive current material pricing information is kept on file.

Plans have also recently been provided to the Caddell Drydock & Repair Co., Inc., Staten Island, N.Y., for a completely new designed 46-foot twin-screw tug with 350 horsepower using two 6-71 diesel engines, with 4.5 to 1 reduction gears, for power. Propellers will be 48-inch diameter, fuel capacity is 4,000 gallons, and draft of hull is 6 feet 3 inches. The tug is to be used for shipyard service.

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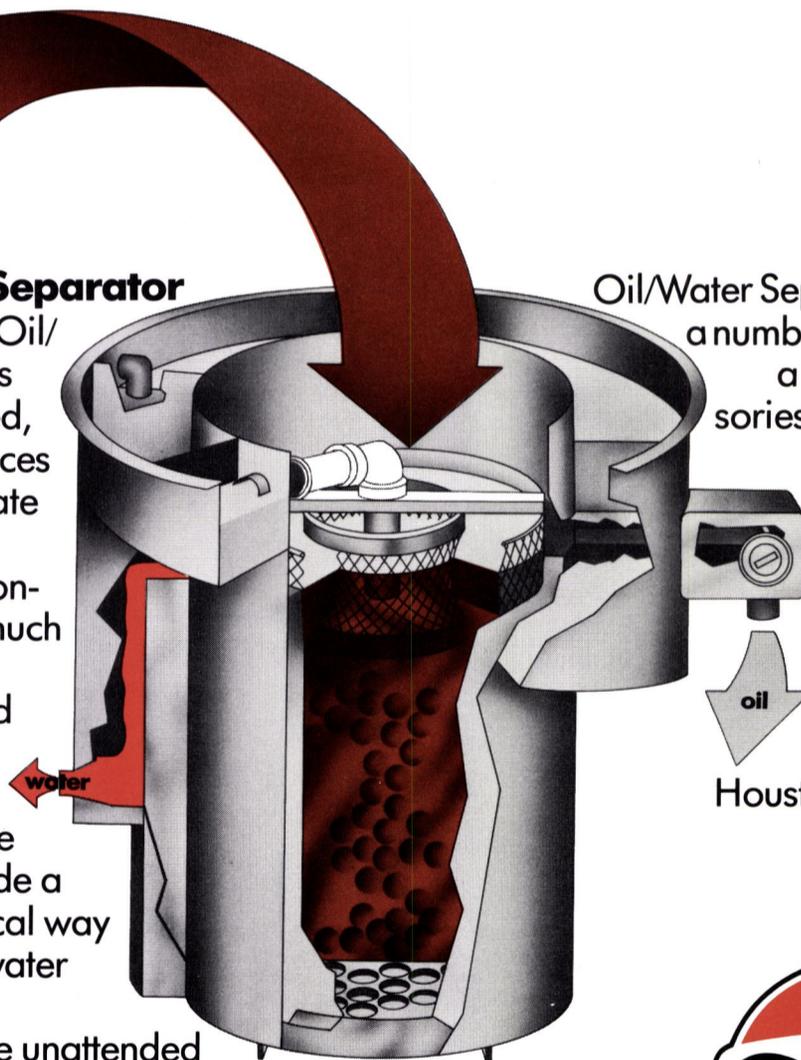
For more information, contact Gerry Gutman, Al Carlson, or Jack Provenzano.

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UNUSED G.E. MAIN PROPULSION STATOR

Type ATB-2 — serial No. 6978272. 2300/2370 volts — 60/62 cycles — 3 phase — 3600/3720 RPM — amps armature 1237/1315 — 4925/5400 KW — 1.0 P.F.

T-2 UNUSED G.E. MAIN PROPULSION STEAM TURBINE WITH ROTOR

10 Stage — 435# — 720° T.T.
Turbine complete with rotor — serial No. 109166 — 4925/5400 KW — 3600/3720 RPM — 10-stage — 435# — 720° TT — 28.5" VAC.

WESTINGHOUSE MAIN PROPULSION STEAM TURBINES

1 unit shrouded
WILL SELL ROTOR SEPARATELY

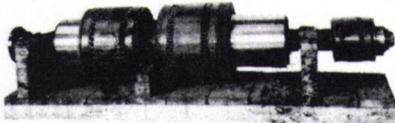
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From Ex-Pecos — in like-new condition. With A.B.S.

COMPLETE WESTINGHOUSE 538 KW TURBO GENERATORS

Complete steam end, reduction gear, electrical end.
Some units recently overhauled for U.S. Government.

WESTINGHOUSE 538 KW AUX. GENERATOR EXCITER ARMATURE



We have both types:
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SPECIAL OFFER T-2 AUXILIARY GENERATOR ROTORS

G.E. AUX. TURBINE ROTORS
DORV-325M — 5645 RPM
For G.E. 525 KW TURBO GENERATOR SETS



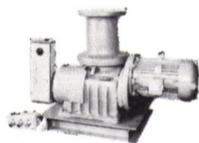
Very little use. In like-new condition. Balanced, and with A.B.S. Certificate.

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WESTINGHOUSE 538 KW TURBINE ROTORS

NEW DOCKSIDE OR SHIPBOARD MOORING CAPSTANS — REVERSING

Duty 10,000 lbs @ 60 FPM



MOTOR: 10 HP—totally enclosed—fan cooled—continuous duty—horiz. flange mounted—special shaft & oil seal fitted—440/3/60—1760 RPM. CONTROL: Marine type watertight pushbutton—forward/reverse/stop—watertight starter box. DIMENSIONS: Barrel 10" diam.—top flange 14½" diam.—bottom flange 16½" diam.—ht. of spool 16"—approx. 26" wide & 36" long.

IMMEDIATE DELIVERY FROM STOCK

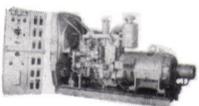
G.E. 600 KW GEARED TURBO GENs.



450/3/60/1200 RPM—961 amps—type AT1—0.8 PF. TURBINE: FSN-FN-20 6-stage — 525 lbs/825°F—superheat 355°/371°F. GEAR: 10033/1200—RPM 1033—total — 6390 lbs. steam/hr. steam flow.

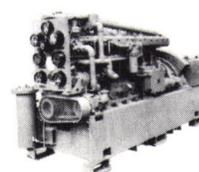
75 KW CUMMINS EMERGENCY DIESEL GENERATOR SET

as removed from
U.S.N. Ship "Pecos"



ENGINE: Electric starting 6-cylinder Cummins, radiator cooled, with alarms. GENERATOR: 75 KW — 93.8 KVA — 440/3/60 — 1200 RPM — 120 amps. Field circuit 125 volts — 15.4 amps — with free-standing switchgear.

100 KW GBD-8 DIESEL GENs.



From LST vessels. 120/240 VDC — 417 amps — stab shunt — 1200 RPM — Delco gen.—self-excited. ENGINE: Superior GBD-8 — 8 cyl — 5½x7 — 150 HP — 30 volt electric starting. Reconditioned to ABS. Dry wt 10,000 lbs — DAL 124" — 65-11/16" high — 42" wide. Ht necessary to pull piston 68". Fuel consumption 0.620 lbs/hr

9 x 12 2-SPEED ALL-STEEL STEAM WINCHES

for use as

MOORING WINCHES OR GENERAL USE

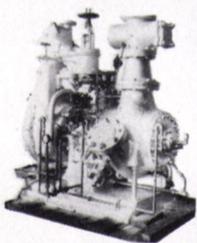
20,000 LBS @ 110 FPM — 7450 LBS @ 250 FPM



DRUM CAPACITY: 1250' of 1" wire in 9 layers or 2200' of 3/4" in 12 layers. Weight 11,300 lbs. DRUM DIMENSIONS: 22" diameter—20" between flanges; flange diameter 40"; two 16" gypsies.

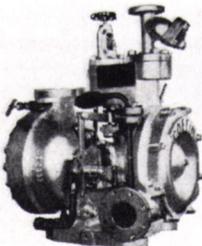
Drum brake—contracting band type—asbestos lining—foot operated. WINCH DIMENSIONS: 12' long—8' wide—5' 10" high. Reconditioned by U.S. Navy. Equal to new.

COFFIN FEED PUMPS — ALL SIZES — TYPE DE



3 TYPE DE-2
540 GPM 1870' NET HEAD
8450 RPM — 585 PSIG — 0°-200° superheat — exhaust pressure 15 lbs — NSPH 30 — typical serial 4683DE

2 TYPE DE-B 214 GPM 2070' NET HEAD
7040 RPM — 241 HP. Steam pressure 597 PSI — superheat 100°-300°F. Typical serial No. DEB 1-25-37

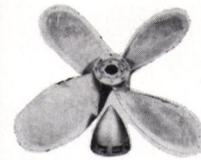


TYPE CG

2 TYPE CG 350 GPM 1880' NET HEAD
7220 RPM — 311 HP. Steam pressure 580 PSIG — 0°-100° superheat. Exhaust 15 lbs — typical serial #5437-CG-8-33

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Manufactured by Gould — horizontal centrifugal — bronze. 4" Suction—3" discharge—250 GPM @ 100 PSI—2200 RPM—30 HP 230 VDC motor with magnetic starter.

• BALLAST PUMPS



Gardner-Denver — bronze — vertical — total suction lift 15' — 8" suction — 6" discharge — 1500 GPM @ 25 lbs — 1750 RPM. MOTOR: 30 HP — 230 VDC — 112 amps — made by Century.

• ANCHOR WINDLASS MOTORS

Vertical — 20 HP — 230 volts D.C.

• RAMP WINCH MOTOR

20 H.P. gearhead deck ramp winch motor.

MATCHED PAIR

12-278A G.M. ENGINES

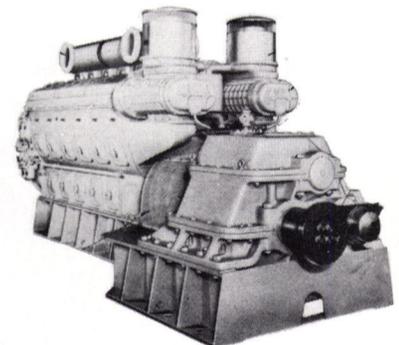
900 HP @ 744 RPM — 8¼" x 10½" — 12 cylinders — VEE type on common base with reduction gear — 2.48:1—Falk—port & starboard. Will sell separately.

• MISCELLANEOUS

- Bronze Triplex Strainers
- Pneumatic Control Stands
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- 35000 CFM Fans

MATCHED PAIR 900 H.P. G.M. 12-567A DIESEL ENGINES

with Falk reverse and
reduction gears



ENGINE: 12-567A — 8½x10 — VEE type — 2-cycle — 747 RPM—electric starting—serial Nos. 1041 & 1060. GEAR: Falk Air Flex—reverse and reduction—2.48:1 forward—2.52:1 reverse.



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TYPE 1460 — 160 SQ. FT.

2-Pass — 15" diameter — 80" overall — 5" seawater inlet — 3" oil inlet — 5/8" tubes. Centers of oil inlets 49 1/4". Copper shell.

TYPE 848 — 75 SQ. FT.

Single pass — copper shell — 8" diameter — oil inlet & outlet 1 1/2" — overall length 60".

DOUBLE-DRUM

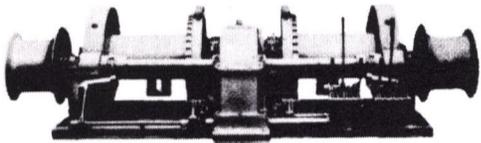
TOWING-MOORING-UTILITY WINCHES

DUTY:

30,000 LBS @ 50 FPM

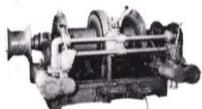
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USING BOTH DRUMS SIMULTANEOUSLY



DRUM: 22" diameter — 36" face — 2500 feet of 1 1/4" wire. Equipped with spooling device. MOTOR: 75 HP — 230 VDC — under-deck mounted — 262 amps — 1140 RPM. Complete with all controls — mfg by Commercial Iron Works. Winch heads declutchable. OAW 16'9" — OAH 57" OA Depth 7'7".

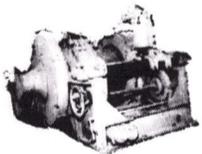
7 x 10 CLYDE DOUBLE DRUM WINCH



Drum 8500 lbs. @ not less than 120 FPM; 13,000 lbs. at no specified speed. Gypsy head 22,500 lbs. static pull. Foot brake to hold 17,000 lb. pull. Steam cylinders with standard 250 P.S.I. DIMENSIONS: 9' 5 3/4" wide over winch heads—5' 10 1/2" wide over bedplate—4' 1" deep over bedplate—6' 5" overall (brake pedal, etc.)—2" steam—2 1/2" exhaust. Drums 16" diameter—20" wide—33 3/8" over flanges. Rebuilt by U.S.N. equal to new.

standard 250 P.S.I. DIMENSIONS: 9' 5 3/4" wide over winch heads—5' 10 1/2" wide over bedplate—4' 1" deep over bedplate—6' 5" overall (brake pedal, etc.)—2" steam—2 1/2" exhaust. Drums 16" diameter—20" wide—33 3/8" over flanges. Rebuilt by U.S.N. equal to new.

100,000 lb. Almon Johnson Constant Tension Mooring Winches



1 Available. In very good condition. Series 232 mooring & anchoring winches — automatic self-tensioning. Wide range from 100,000 lb line pull at 10 FPM to 26,000 lbs at 400 FPM. Gypsy line pull 12,000 lbs at 125 FPM. Drum declutchable through spiral jaw clutch for free spooling.

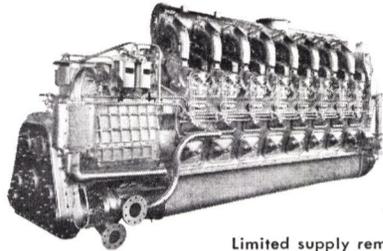
Driven by 50 HP — 230 VDC motors — Westinghouse CK — 575 RPM — 1/2 hour — 75°C rise — stab. shunt — 181 amps — max. RPM 1900. Cutler-Hammer brake — 18" — type NM.

C4-S-A1 KAISER VESSEL

Formerly Operated by Bethlehem Steel Co.

- 3 Worthington-Moore 400 KW aux turbine rotors — seven stage — 6097 RPM — form S6
- Two main stop valves — boiler) — 600 series — 5" Crane
- Lube oil transfer pump & motor with Foote Bros. gear

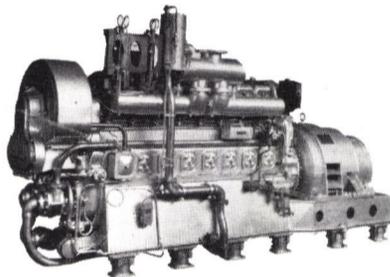
G. M. 16-278A 1700 H. P. DIESEL ENGINES



Limited supply remaining

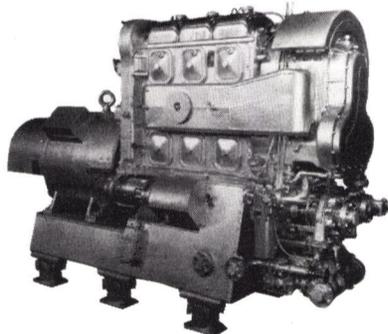
Complete, clean and in very good condition. As removed from U.S. Naval vessels. 1700 HP @ 750 R.P.M. Your inspection invited.

G. M. 8-268A 200 KW A.C. DIESEL GENERATOR SETS



ENGINE: 8-268A — 6 1/2" bore — 7" stroke — 1200 RPM — driving Westinghouse generator — 200 KW — 440 volts — 3-phase — 60 cycle — 321 amps — 80% power factor at 1200 RPM. Switchgear available.

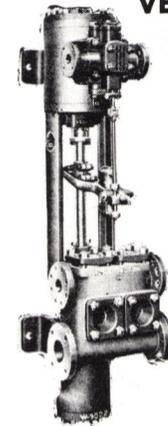
G. M. 3-268A 100 KW A.C. DIESEL GENERATOR SETS



ENGINE: GM 3-268A — 6 1/2 x 7 — 1200 RPM — 80% power factor — electric starting. GENERATOR: 100 KW — 440/3/60/1200 RPM — 161 amps. Dripproof — open — self-ventilated. (Class "A" insulation stator — Class "B" insulation on field). EXCITATION: 2 KW DC unit — 9' 1 3/4" long — 37" wide.

PUMPS

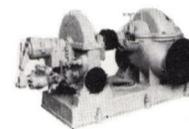
UNUSED WORTHINGTON VERTICAL SIMPLEX PUMPS



7 1/2 x 4 x 10 — 3" suction — 2" discharge — 1 1/4" steam — 1 1/2" exhaust. OAH 5'2"; OA depth 23"; OAW over air dome 2'2". Weight about 800#. Suitable for Liberty Ships EC-2 & Victory Ships VC2, AP2 & AP3. (Fuel oil service) Liquid capacity from 8 to 20 GPM — up to 350#. Also suitable for small boiler feed service. Steam WP 220# and 10# exhaust.

\$795

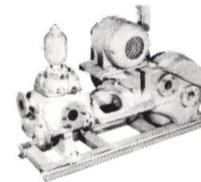
TURBINE-DRIVEN CIRCULATOR



6300 GPM at 25' or 4000 GPM at 35'. Pump — 12 x 14 — 75 HP turbine — 600 lbs — 5 lbs back pressure — 1200 RPM. Turbine manufactured by Whiten

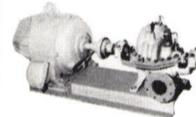
— type B.K.S. Pump manufactured by Lawrence

MOTOR DRIVEN GARDNER-DENVER RECIPROCATING BILGE PUMP



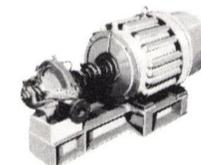
50 GPM — 150 PSI — Model ALAXE — Serial No. 106335. 3 3/4" Bore — 4" stroke — 2 1/2" suction — 2" discharge. 51" long — 21" wide — 21" high. Weight 750 lbs. MOTOR: Diehl — 2.5 HP — 440/3/60 — 1750 RPM — 3.53 amps.

GOULD FIRE & BILGE PUMP



EX-LST — horizontal centrifugal — bronze. 4" Suction — 3" discharge — 250 GPM @ 100 PSI — 2200 RPM. MOTOR: 30 HP — 230 VDC — with magnetic starter.

AURORA HEAVY-DUTY BRONZE FIRE SERVICE PUMP

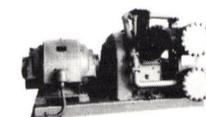


Single stage — 2 1/2" suction — 2" discharge. 3000 RPM — 250 GPM — 100 lb. head. Impeller diameter 9 1/2". MOTOR: air cooled heavy duty 25 HP Reliance T type ON-2S-2 1/2 230 VDC — 110 amps — stab. shunt.

2000 GPM PUMP

Practically new — bronze construction. 2000 GPM — 337' head — bottom suction — side discharge. 8" Suction — 8" discharge. With coupling. Manufactured by Frederick Pump Co.

AIR-COOLED NAVY AIR COMPRESSOR



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CONNECTED

Manufactured by LeRoi — model M25105 — 100 lbs. at 100 C.F.M. — 875 RPM. Height 45" — width 48" — length 73". Driven by G.E. 28 H.P. motor — 440/3/60 — 876 RPM — 38.2 amps — type K.F. — frame 4405Y.

ON METALS CO.

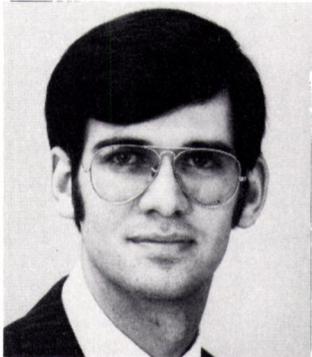
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INQUIRE ABOUT ANY ITEMS YOU NEED!

Messer And Griffis Join Trailer Marine

Two appointments have been made in the marketing division of Trailer Marine Transport Corporation, Jacksonville, Fla., according to a recent announcement by **Richard A. Simpson**, vice president-marketing.



David N. Messer

David N. Messer has been named assistant to the vice president-marketing, and **Sam Griffis**, account executive for the Jacksonville sales district of TMT.

Mr. Messer's responsibilities will include corporate sales administration, plus research and development of marketing and sales activities. He previously spent seven years in marketing

for two other marine transportation firms.

Mr. Griffis comes to TMT with 20 years of experience in sales, marketing and governmental relations. He most recently served as field director and Washington representative for the National Independent Auto Dealers Association. Prior to that, he was manager of government accounts for a national intermodal freight company.



Sam Griffis

TMT is a member of the Caribbean Division of Crowley Maritime Corporation, San Francisco, Calif. TMT has provided uninterrupted service to Puerto Rico from Florida ports over the past 23 years. Crowley acquired TMT in 1974.

Paper On Drydock Designs Presented At San Diego Meeting



The San Diego Section of The Society of Naval Architects and Marine Engineers held its September meeting at Caesar's Mission Valley, San Diego, Calif. **Hans A. Hofmann**, sales manager for MacGregor-Comarain, Inc., presented an excellent paper entitled "Dry Docking — An Evolution."

The paper covered the various designs of drydocks currently used in the industry and the advantages of the single-piece floating drydock over the multi-section dock. The problems of drydocking ships in older multi-section drydocks was reviewed in depth. It was also noted that the U.S. Navy, prompted by some recent

accidents in drydocking, is currently developing a procedure to certify Naval and commercial floating drydocks that are currently docking Navy ships. A question and discussion period for the 54 members and guests in attendance concluded the meeting.

Officers and guests shown at the SNAME San Diego Section, September meeting are, left to right: **Robert J. Anders**, secretary-treasurer; **Larry A. Russon**, papers chairman; **Ross L. Haith**, co-author of paper; **Hans A. Hofmann**, featured speaker and co-author of paper; **Ralph J. Bradford**, chairman, and **William F. Gordon**, vice chairman.

Schneider And Moody Named To New Posts At Moore-McCormack Lines

Robert E. O'Brien, president of Moore-McCormack Lines, Incorporated, has announced the appointment of **Frederick W. Schneider** as director of outport operations.

In his new position, Mr. Schneider will have the overall responsibility for the operational functions of the company at East Coast ports other than New York.

Mr. Schneider attended the U.S. Merchant Marine Academy at Kings Point, N.Y. He joined Mooremack in 1943 as third officer on the S/S Mormacrey. In 1957, he came ashore as operations manager in Boston, Mass., and has held various positions in the Lines' outport offices until the present date. Mr. Schneider will maintain his headquarters in Philadelphia, Pa.

Peter J. Moody will assume Mr. Schneider's former position as operations manager-Philadelphia, and will be responsible for the stevedoring, terminal and marine activities of that port.

Mr. Moody joined Mooremack in 1947 as an employee of Moore-McCormack Stevedoring Company in Philadelphia, and in 1972 became assistant operations manager of the company's Philadelphia office.

Moore-McCormack Lines is the ocean-shipping subsidiary of Moore McCormack Resources, Inc.

Burmeister & Wain Opens Marine Service Center In Hong Kong

B&W Marine Service, a division of the Burmeister & Wain Group of companies, marine diesel engineers of Copenhagen, Denmark, has opened a Marine Service Center in Hong Kong at 131-133 King's Road, North Point.

Robert Jensen, superintendent engineer, who has taken up the post in Hong Kong, came from a similar post at the B&W Marine Service Center in Singapore.

B&W Marine Service has a worldwide net of service centers and authorized repairers who provide technical service and spare parts supplies to owners of B&W marine diesel engines.

The B&W Marine Service Center is located at The East Asiatic Company's offices at North Point, Hong Kong. The latter company had for many years been B&W agents, and they are well-known to shipping people.

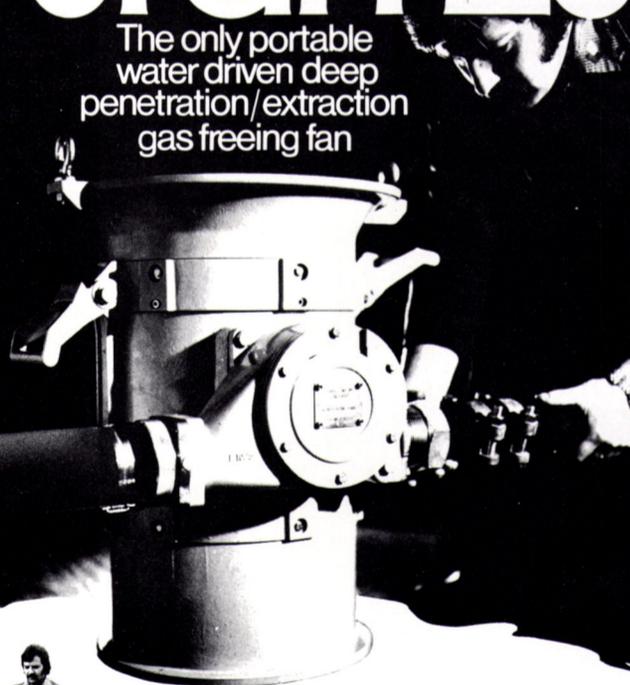
B&W Marine Service have established a cooperation with Brigantine Services Ltd., where component repairs and reconditioning will be carried out.

Hongkong United Dockyards has for many years been authorized repairers of B&W diesel engines, with backing of B&W know-how. Thus, a more comprehensive B&W service is now available in the Port of Hong Kong.

DASIC

Jetfan 125

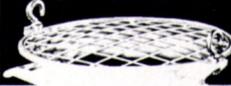
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penetration/extraction
gas freeing fan





The Jetfan 125 is truly portable, weighing only 43kg (95lbs) it can be easily installed, converted, and operated by just one man.

With its unique dual purpose design and high performance, of 12,500 cubic metres per hour air throughput, the Jetfan is economic, safe, and super-efficient.



View of top showing safety mesh

Write, telephone or telex today for details of the Jetfan 125 to:

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Tel: Romsey 512419. Telex: 47548.

USA: Dasic International Corp., 1035 Southeast Ninth St., Portland, OR 97214
Phone: 503/238-0399 TWX: 910-464-8085

Prudential Lines Names Captain George Evans



Capt. George H. Evans

Capt. George H. Evans has been appointed general manager-operations of the Mediterranean/Mid-East Division of Prudential Lines.

Captain Evans has had an extensive career in shipping, first as a commander of ships (the British vessels Nailsea Meadow, Empire Flame, and Empire Gale), and as a land-based manager. Most recently, Captain Evans was chairman and managing director of Refrigerated Express Lines Ltd., with headquarters in Sydney, Australia. Previously, he had been vice president of R.J.I. Corporation, senior vice president of States Marine Lines and president of Safmarine (N.Y.).

Captain Evans is a member and former vice president of the New York Shipping Association, and is a founding member of the Council of North Atlantic Shipping Associations and its first president.

Prudential's Mediterranean/Mid-East Division has pioneered the use of the LASH (lighter aboard ship) system. Each LASH vessel carries up to 77 lighters (barges) suitable for all cargo types including bulk, breakbulk, liquid bulk, palletized, unitized, refrigerated, and heavy equipment for construction projects. Prudential serves the Mediterranean from U.S. East Coast ports.

Eight-Page Brochure Describes New Concept In 3-Way Rotary Valves

Leslie Co. has released a new eight-page illustrated brochure on their space-saving 3-way rotary valve for by-pass temperature control in marine, industrial and utility application.

The brochure explains how savings of up to 50 percent can be achieved with the new 3-way rotary valve concept over conventional globe-type 3-way valves.

Numerous schematics show typical 3-way rotary valve application in marine main diesel engine cooling. Complete valve specifications are included, plus data on control and actuation, operation, sizing, selecting, accessories and options.

Write for bulletin 10/7.1.1, to G.W. Stables Jr., Leslie Co., Parsippany, N.J. 07054.

Brochure Describes Removal Of Smoke From Air Vents

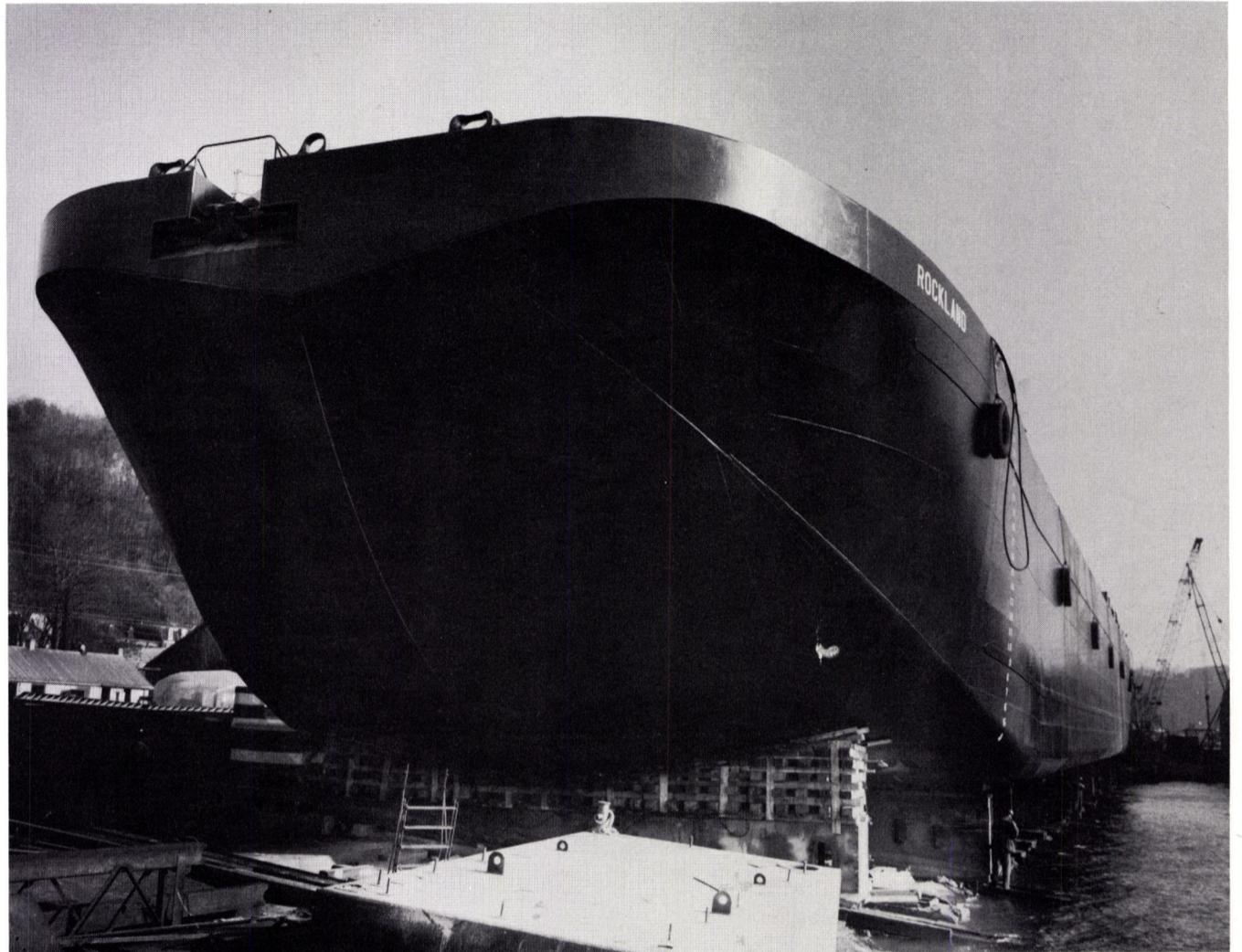
Vent Fog Precipitators, to remove oil mist and smoke from the air of breathing vents on marine operating machinery, are now being marketed by Bull & Roberts, Inc. They are designed for installation on compressors, tur-

bines, reduction gear cases, diesel engines, lube oil systems and similar applications.

Normally in lubricating systems, petroleum-based and synthetic oils break down into fine mist and smoke particles which escape through bearing seals to breather vents where they are exhausted. Unless they are recovered, they can create health and fire hazards, violate air pol-

lution codes, and foul relays and other electronic components.

All six models meet MIL-STD requirements of high impact shock, environmental vibration and electronic interference, and are manufactured to military specifications. For an illustrated brochure, write to John M. Walsh, Bull & Roberts, Inc., 785 Central Avenue, Murray Hill, N.J. 07974.



When bigger barges are built, Wiley will build them.

A case in point: Pittston Marine's new tank barge, a floating oil field over 315 feet long was recently built by Wiley. Designed for manned coastwise service or unmanned ocean service, the "Rockland" carries up to 70,000 barrels of Grade A petroleum products and lower, with approximately 3.4 miles of heating coils for hot oil.

Deep well pumps are on the deck, with drive engines in an all-weather enclosure. A recessed house for quarters and galley is heated and air-conditioned.

The "Rockland" is the latest in the Wiley built deck, tank, dump, crane and coal barges; clamshell dredges; tugs and towboats; tankers, passenger and fishing vessels. With

Wiley's broad marine capabilities, we can custom-build to your specifications.

For more information, contact:

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Telex No. 83-5370



Gotaverken Delivers Third Tanker For Iraq



The Hittin is powered by an 8-cylinder, large-bore Burmeister & Wain diesel built at Gotaverken's engine works.

The state-owned Iraqi National Oil Company has recently taken delivery of a 155,200-dwt tanker built at Gotaverken Arendal. The ship, which shortly before the delivery was given the name Hittin, is number three of four ships of the same type and size being built by Gotaverken for INOC.

The first in this series of tankers for Iraq, the Alquadisayah, was delivered in March 1976, and was then the biggest ship in the Iraqi merchant fleet. Number two, the Amuriyah, was delivered in January this year, and the fourth and last will be delivered on schedule at the end of this year.

All three new ships are now operating between the Persian Gulf and the Mediterranean.

The Hittin is number 28 in a series of 32 tankers of this size and type building at Gotaverken Arendal.

The Hittin is built to the highest class with Lloyd's Register, with the designation "UMS" (unmanned engine room).

The principal particulars are as follows: length overall, 935 feet, molded breadth, 145 feet, molded depth, 73 feet 7 inches, and deadweight at summer freeboard, 155,200 deadweight tons.

The cargo tanks are arranged in four groups, each served by a separate cargo pump and with double shut-off between the groups. Thus, the vessel can carry four completely segregated grades, each representing 25 percent of the total capacity.

The deckhouse, comprising six stories, and the machinery casing are entirely separate.

The deck machinery is steam-powered and comprises six automatic mooring winches and two windlasses combined with mooring winches, as well as two 10-ton cargo winches amidships.

The main engine is an 8-cyl-

inder, large-bore diesel engine of Burmeister & Wain's type K90-GF, built at Gotaverken's engine works.

At the continuous service rating of 24,800 bhp, the trial speed was approximately 16.5 knots.

Steam for the engine room requirements is provided by a Gotaverken/Sunrod exhaust boiler. Steam for cargo heating and pumping is supplied by two Gotaverken/Sunrod separately-fired boilers, each rated at 25 t/h.

Two of the cargo oil pumps are turbine-driven, the remaining pair being driven by auxiliary diesel engines.

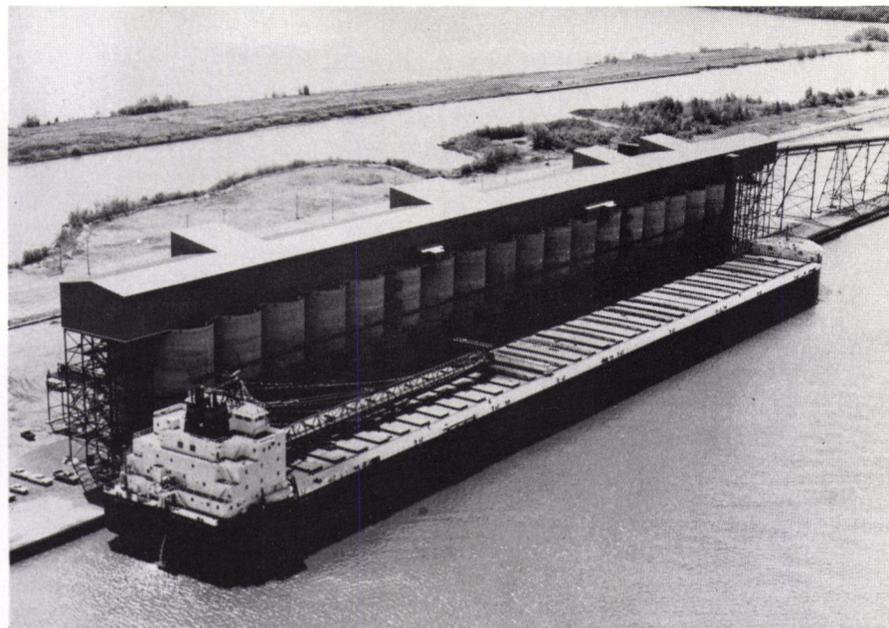
The vessel has three 12-cylinder, V-type auxiliary diesels of BMW make, each driving a Nebb generator rated at 1,250 kw. Two of the motors are also connected to cargo oil pumps via an angle gear.

Contromatics Describes Marine Ball Valves In 34-Page Brochure

Contromatics offers a free 34-page illustrated brochure describing their entire marine valve line. Valves are available in standard and full port, two-way and three-way, and in all popular materials and body styles.

The ¼-turn action of Contromatics ball valves assures excellent performance in many marine applications, engine cooling, and compressed air systems, for example. Contromatics three-piece design speeds installation since the valve itself acts as a union.

This booklet contains 39 different detailed drawings, as well as complete specifications for all models. For your copy, write for Marine Brochure 7500, John Le Prohun, Contromatics Division, Litton Industrial Products, Inc., 222 Roberts Street, East Hartford, Conn. 06108.



A RECORD LOAD — Taking on a record 56,200 long tons of taconite pellets at a new \$70-million dock facility at Superior, Wis., is the Mesabi Miner, a 1,000-foot-long Great Lakes ore carrier. The facility, which became fully operational in April, is being leased by the General Electric Credit Corporation and J.P. Morgan Interfunding Corp. to a subsidiary of Burlington Northern, Inc. It consists of 36 concrete silos with a capacity of 72,000 long tons which are loaded by a computerized conveyor from Burlington Northern unit trains. The dock is capable of processing 18 million long tons of taconite pellets annually. It is expected to ship some 7 million tons during the remainder of the 1977 shipping season.

Crossocean Shipping Names Thomas Giardino

Marko Zaja, president of Crossocean Shipping Co. Inc., general agents for the recently inaugurated service of Medafrica Line between U.S. Atlantic and Gulf ports and Port Harcourt, Nigeria, has announced the appointment of **Thomas J. Giardino** as director in charge of operations for the line.

Mr. Giardino, who is well-known throughout the industry, was formerly vice president and general manager of MORAM. He has also served in executive positions with Marchessini Lines, Ta Peng Lines, U.S. Navigation, and Norwegian America Line.

He is a member as well as a past commodore of The Rudder Club of New York, the Downtown Athletic Club, the Traffic Club of Hudson County, the National Defense Transportation Association, and is on the Cardinal's Maritime Committee of the Laity.

Medafrica Line started its semi-monthly independent service from U.S. East Coast ports to Port Harcourt, Nigeria, in early April of this year. The line offers a transit time of 16-17 days, with immediate, direct berthing at Port Harcourt.

In July, Medafrica commenced its independent direct service from U.S. Gulf ports, with sailings every month.

Referring to Mr. Giardino's extensive experience in the shipping industry, Mr. Zaja remarked that the appointment would no doubt be a significant contribution to the success of the line's services.

Johnston Vertical Pumps Names Hoffert Marine

Hoffert Marine Inc. will handle Johnston Vertical Pumps on the East and Gulf Coasts, and has added a repair facility for the Johnston Deepwell Pump at their Jacksonville, Fla., headquarters.

Paul E. Hoffert, president of the Jacksonville-based firm, said the new Johnston Model JS Barge Stripper is designed for single pump unloading and close stripping of bulk petroleum and other products from cargo barges, tankers and other carriers. The new Johnston pump is usually installed as a permanent, central unit designed to service all storage compartments.

Hoffert Marine is presently receiving pumps and delivering overhauled completely, in six days, to East Coast, Southeast and Gulf ports. Hoffert hopes to cut that time in half in the near future.

He said: "There are many manufacturers of deepwell pumps, and we have the ability to overhaul all makes by cross reference of parts, adaptation of rebowling, using the proper parts and materials and conforming to the original pumping requirements specified. In most cases, we can replace if necessary, from the discharge head to the bottom of the column, including all stages, spiders, bearings, etc., on any make up to 20 inches."

In addition to the Jacksonville headquarters, Hoffert Marine has offices in Lyndhurst, N.J., serving the Port of New York and New Jersey, Norfolk, Va., and Houston, Texas.



FIRST SCR TUG/SUPPLY BOAT CONTRACT SIGNED — Halter Marine Services, Inc. of New Orleans, La., will begin construction soon of the first two offshore tug/supply ships to be equipped with an SCR (Silicon Controlled Rectifier) diesel electric propulsion system. The two 216-foot vessels will be built for Acadian Marine Services, Inc., New Orleans, for a wide variety of operations, from offshore rig support to feeder-container service. From left to right, are: Capt. **Rudy Vorenkamp**, executive vice president, Acadian Marine; **Prieur Leary**, president, Acadian Marine, and **Joseph H. LeBlanc Jr.**, executive vice president, Halter Marine Services.

United States Lines Names Capt. Yarborough Assistant Marine Supt.

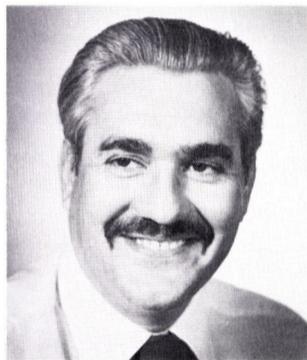
Capt. **Edwin K. Yarborough** has been named assistant marine superintendent, United States Lines. The appointment was announced by **Kenneth W. Gundling**, vice president-marine, at New York, N.Y.

Captain **Yarborough** was previously safety director, marine, at the Lines' New York office. He joined United States Lines in 1947. He served as port security officer aboard the S/S United States and S/S America, and also as chief cargo officer for United States Lines from 1959 to 1971. He was cargo operations representative and supervisor from 1971 to 1976.

He has served as an expert witness to admiralty courts, and his special interests are marine architecture and ship design. During World War II, he commanded merchant vessels, as he did subsequently during the Korean Conflict.

United States Lines operates a fleet of 38 modern vessels, including 16 high-speed, high-capacity containerships in its 15,000-mile, Tri-Continent Service between Europe, the East and West Coasts of the United States, Panama, Costa Rica, Hawaii, Guam and Far East and Southeast Asian ports. The company also has 14 fast general cargo vessels engaged in chartered services in the trans-Atlantic and trans-Pacific areas. Eight feeder-vessels serve ports not on the primary trade routes, both in Europe and the Far East.

Varo Names Johnson Marine Coordinator



L.C. Johnson

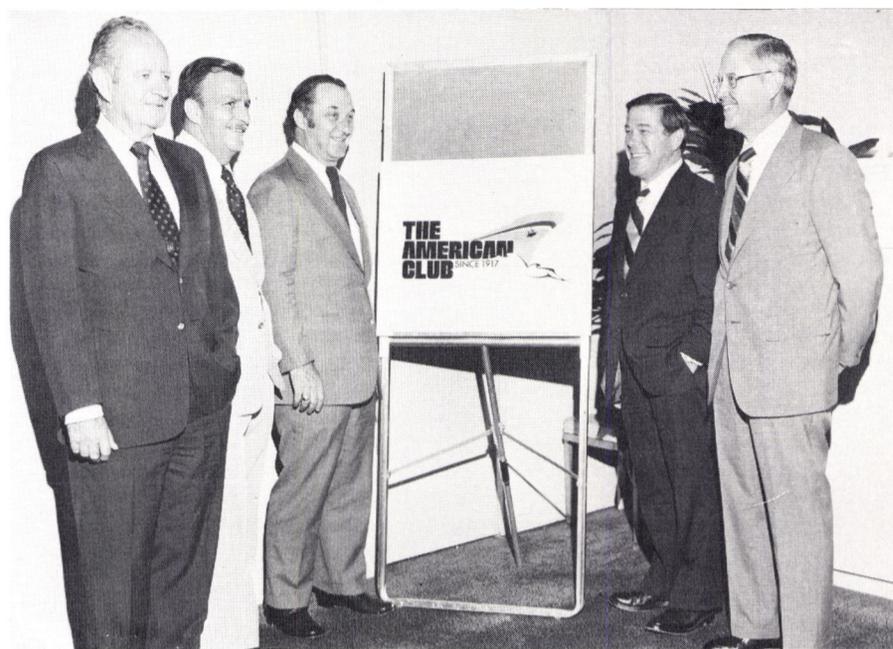
L.C. (Bert) Johnson has joined Varo, Inc. as marine searchlight field representative for the inland waterways, Gulf Coast and Great Lakes areas. In this capacity, Mr. **Johnson** will be responsible for coordinating the company's sales and service activities to the marine industry.

Mr. **Johnson** has been involved in sales and service of marine communications and navigation equipment for the inland waterways and offshore marine industry since 1970. Prior to that, he served with the U.S. Air Force for more than seven years, where he worked in the military electronics field.

Varo, Inc. entered the marine searchlight field in 1975, after 13 years' experience manufacturing searchlights for the U.S. Army. The company is currently the world's largest manufacturer of Xenon searchlights, in addition to its position as a major manufacturer of night vision devices and semiconductor components.

For a brochure describing Varo searchlights, write to **Kenneth I. Clifford**, Varo, Inc., P.O. Box 828, Garland, Texas 75040.

American Club Triples Tonnage In Five Years



Robert J. Blackwell, Assistant Secretary of Commerce for Maritime Affairs, third from left, touches off laughter just before beginning of luncheon celebration of the 60th Anniversary of The American Club at the Whitehall Club in New York City. Left to right are: **T.J. Smith**, president of Farrell Lines Incorporated and deputy chairman of The American Club; Rear Adm. **William M. Benkert**, Chief of Maritime Safety, USCG; Mr. **Blackwell**; **J.H. Cassidy**, president, Shipowners Claims Bureau, and **Adolph B. Kurz**, president, Keystone Shipping Company and chairman of The American Club. In 1973, the Club opened membership to non-American shipowners. It is the only nonprofit, mutual P&I Club in the United States. In the center is a reproduction of the new logo designed for The American Club, and is symbolic of the Club's forward-looking approach in the P&I industry.

By tripling the ship tonnage it provides with mutual protection and indemnity insurance over the past five years, The American Club has served up a "jolting reminder to all that American enterprise can successfully compete in the international market place."

The statement was made by **Robert J. Blackwell**, Assistant Secretary of Commerce for Maritime Affairs, before 55 persons attending the 60th Anniversary luncheon of the American Steamship Owners Mutual Protection and Indemnity Association at the Whitehall Club, New York City on September 8.

Appearing as guest speaker, Mr. **Blackwell** said: "We at Mar-Ad are pleased that you are continuing to provide American shipowners with a strong, progressive and competitive alternative in the international P&I market."

The Commerce Department official said: "This most certainly will benefit members of the Club and other shipowners, as well by helping to maintain a balance in P&I rates."

Mr. **Blackwell** observed that the Club had come from behind in achieving its success. He recalls that shortly after joining the Maritime Administration in 1970, he was advised by that agency's marine insurance staff that "all was not well" for U.S.-based P&I agencies.

Most, including The American Club, had lost substantial tonnage to increased competition by British clubs, and some U.S. P&I underwriters went out of business (The American Club is the only mutual P&I club in the United States).

Mr. **Blackwell** then pointed out that The American Club bounced

back from a tonnage of one and a half million tons in 1970 to achieve its present tonnage of over 5,000,000 tons this year.

Guest speaker Rear Adm. **William M. Benkert**, Chief of Maritime Safety, United States Coast Guard, told those present that The American Club's increased emphasis on loss prevention paralleled the Coast Guard's increasing emphasis on preventing ship accidents at sea and in the nation's ports.

Other honored guests attending the anniversary luncheon were **Kesley H. Green**, Director, Office of Marine Insurance, Maritime Administration; Capt. **George N. Wood**, United States Coast Guard; **Robert T. Young**, president, American Bureau of Shipping; **Francis T. Donohue**, chief, Property Bureau, New York Insurance Department, and **George Fosket**, assistant chief, Property Bureau, New York Insurance Department.

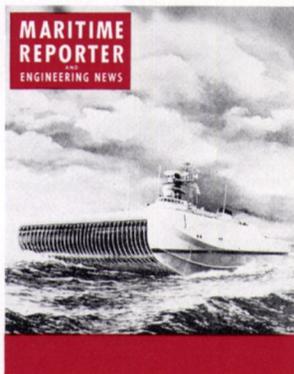
Blount Marine Corp. Contracts To Build Fishers Island Ferry

Blount Marine Corporation of Warren, R.I., announces the signing of a contract with the Fishers Island Ferry District for a new ferry. The 132-foot by 33-foot by 8-foot vessel will replace the Mystic Island on the run between New London, Conn., and Fishers Island, N.Y. The vessel will carry 210 passengers, three trucks, and 17 cars. She will be powered by two GM 12V71N engines and will cruise loaded at 13 knots. The new ferry will join another Blount vessel operated by the Ferry District, the *Olinda*.

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S.N.A.M.E. 84th ANNUAL
MARITIME REPORTER . . . December 1976
No. 2 Magazine January 1977



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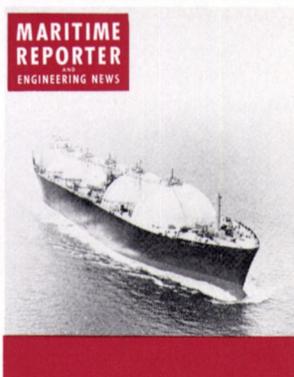
TYPHOON
MARITIME REPORTER . . . February 1977
No. 2 Magazine March 1977



M/V AMERICAN ENTERPRISE
MARITIME REPORTER . . . December 1976
No. 2 Magazine March 1977



SEASPEED ARABIA
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**MarAd Releases
15 Technical Reports
On Gas Turbines**

The Maritime Administration has released a group of 15 technical reports evaluating the feasibility of heavy-duty gas turbines as a competitive and acceptable form of marine propulsion generation. The reports were prepared under a contract awarded in 1970 to the General Electric

Company, Gas Turbine Products Division, Schenectady, N.Y.

The total technical effort was completed in a period of five years and at a total cost of \$8,025,000, which was shared equally by General Electric and MarAd. The project encompassed a wide range of research and development activities, including: research on fuel additives, turbine blade coating and cladding materials, turbine cleaning tech-

niques and fuel oil washing; and design, development and testing of an RF Plasma Fuel Oil Analyzer, internally reversing gas turbine and regenerators having improved materials and cyclic life.

The objective of the project was to pursue those design and development efforts that would permit the "marinization" of the heavy-duty gas turbine. Basically, this implied that the "marine"

heavy-duty gas turbine must be capable of burning typical marine residual fuels having high sulfur, vanadium and sodium levels; capable of developing the required astern power for maneuvering; competitive with other forms of power generation (primarily steam turbine) from both a fuel consumption and maintenance point of view.

The reports are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22161. The following is a list of the reports, including price and order numbers:

Task 1/6 — Operational Performance and Maintenance Improvement. Volume A, Rig Testing and Fuel Additive Development, No. PB-271-061/AS, \$10; Volume B, Materials Development, No. PB-271-059/AS, \$10.50; Volume C, Other Research Efforts, No. PB-271-060/AS, \$8.

Task 2—Turbine Cleaning, No. PB-271-057/AS, \$4.50.

Task 3—Fuel Conditioning Improvement. Volume A, Automatic Fuel Analysis Instrument, No. PB-271-062/AS, \$8; Volume B, Total System and Development Investigations, No. PB-271-063/AS, \$5.50.

Task 4 — Reversing Turbine. Volume A, Reversing Turbine Design, No. PB-271-065/AS, \$11; Volume B, Assembly and Test, No. PB-271-056/AS, \$8.

Task 5—Regenerator Improvement. Volume A, Pressurized Strongback Design, No. PB-271-064/AS, \$11.75; Volume B, Pressurized Tube Design, No. PB-249-787/AS, \$8.

Task 7—Program Management, No. PB-271-058/AS, \$5.50.

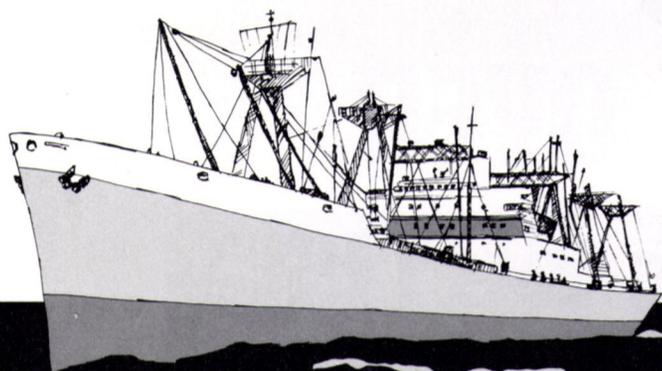
Task 8 — Marine System and Engineering Analysis. Volume A, Design, Performance and Application Data, No. COM-75-10754, \$7; Volume B, Ship/Gas Turbine System Integration, No. COM-75-11115/AS, \$5.75; Volume C, Economic Analyses, No. COM-75-11196/AS, \$4.25.

Operational Performance Verification of Advanced Gas Turbine Technology, No. PB-251-087/AS, \$6.

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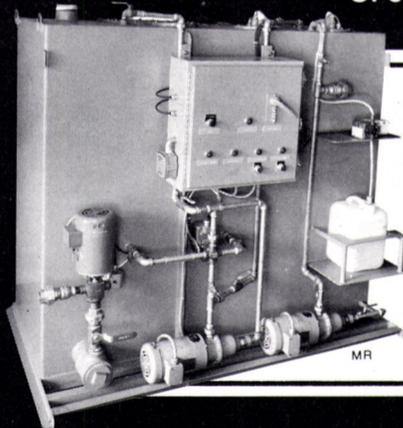
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Bath Iron Works Appoints Igo Jekkals



Igo Jekkals

John F. Sullivan, president of Bath Iron Works Corporation, Bath, Maine, has announced the appointment of Igo Jekkals as manager of manufacturing engineering for the shipyard. In his new position, Mr. Jekkals will have responsibility for plant maintenance and engineering, industrial engineering, Maritime Administration (MarAd) programs, and office maintenance.

Mr. Jekkals worked for the General Electric Company since 1965, prior to joining BIW last year.

Most recently, he was manager of manufacturing engineering operations at the Switchgear Equipment Business Division of General Electric in Philadelphia, Pa.

Mr. Jekkals is a graduate of the Case Institute of Technology, Cleveland, Ohio, and holds a B.S. degree in metallurgical engineering, as well as an M.B.A. degree in business administration from Western New England College, Springfield, Mass.

Bath Iron Works is a wholly owned subsidiary of Congoleum Corporation, a nationally recognized style, design, and product leader in the resilient floor covering field, and is a manufacturer of furniture and furnishings for the mobile home industry.

Webb Institute Receives Grant For Research Facilities

Webb Institute of Naval Architecture, Glen Cove, N.Y., has announced that a grant has just been received from the National Science Foundation to provide substantial financial assistance in the construction of a hydraulically driven oscillating table. The table will provide both angular and lateral motions over a wide range of frequencies and amplitudes, with any desired phase relationship, and will be used initially for the investigation of dynamic forces and pressures caused by liquid sloshing in tanks of ships carrying liquid cargoes. There are indications of strong interest in these sloshing loads in the shipbuilding industry, particularly in relation to the problems of design of LNG tankers.

The new oscillating table can also be used for studies of tank-type stabilizers. It is expected

that it will be applied to student thesis projects, as well as to sponsored research studies.

This new piece of equipment is part of a laboratory facilities improvement program at Webb Institute. A PDP-11/05 Computer, recently donated by the EDO Corp., College Point, N.Y., forms the nucleus for a digital data recording system for the model basin. This permits computer processing of test data expedi-

tiously and accurately, in particular to make spectral analyses of wave response records for tests in irregular seas. The National Science Foundation also provided financial assistance for this system, as well as for planned improvements in the tank drive equipment and a new force and motion dynamometer for the carriage.

The Webb Center for Maritime Studies is now in a position to

carry out a much wider range of experimental studies of motions and loads on ships, floating platforms, mooring systems and internal tanks, either in regular waves or in irregular waves having any specified spectrum. Other financial assistance for tank instrumentation for studies relating to general specific problems of safety of ships at sea has been given by the Life Saving Benevolent Association of New York.

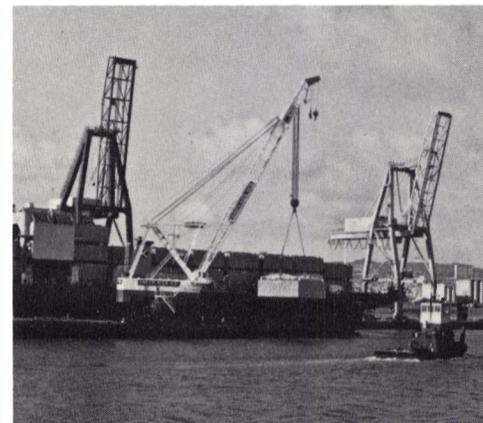
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ABS Reports Increase In Classifications

The American Bureau of Shipping (ABS) classed 1,056 new vessels of 12,581,000 deadweight tons, or 6,636,000 gross tons, in the first six months of this year, chairman and president **Robert T. Young** reported at the semi-annual meeting of the ABS board of managers held in New York City.

During the same period, ABS classed 76 existing vessels of 1,883,000 dwt, or 1,054,000 gt, bringing the total number of vessels in ABS class to 14,944 of 177,800,000 dwt, or 99,886,000 gt.

Mr. Young noted that the figures represent increases in classification of both vessels and tonnage over the first six months of 1976. He also said that with the addition of July and August classification figures, ABS had for

the first time in its history more than 15,000 vessels, and more than 100 million gross tons under its classification.

While the classification figures for the first six months of 1977 are "certainly gratifying," Mr. Young told the board of managers, "they do not represent a turnaround in newbuilding activity." He said that the worldwide industry remains "in the throes of a depressed market" in which

"orders for new vessels have slumped to about 25 percent of the estimated world building capacity." As of July 1, he said, 1,946 vessels totaling 28,827,000 dwt, or 17,522,000 gt, were on order to ABS classification.

ABS involvement with liquefied gas carriers is increasing, Mr. Young reported. As of July 1, there were five LPG vessels building or on order to ABS classification, including two in Japan and one each in France, Italy, and the Philippines. In addition, there were 30 LNG vessels being built, or on order to be built, to ABS class — two in Sweden, nine in France, and 19 in the United States. The first LNG vessel built in the United States, the ABS-classed LNG Aquarius, was delivered in June, and is in service between Japan and Indonesia.

During the first half of 1977, the society classed 46 tankers — 20 of which are VLCCs—73 bulk carriers, 33 general cargo vessels, and eight cargo-carrying vessels of other types. These figures represent increases over their respective numbers classed in the first six months of 1976.

Mr. Young said that ABS was particularly active for the first six months in classifying new small vessels. Classed through June were 129 tugs, 25 tug/supply vessels, 24 supply vessels, 119 fishing vessels, 27 launches, six ferries, and 23 self-propelled vessels of other types.

Mr. Young said that more than 200,000 containers have been ordered to the ABS "Container Rules," and that as of July 1, certification orders totaled more than 19,000 units of various types and sizes, representing an increase of more than 36 percent over July 1, 1976.

Regarding ABS standards, Mr. Young said that revisions are being made in the Rules for Building and Classing Offshore Mobile Drilling Units, and the "Guide for the Classification of Manned Submersibles." In final stages of preparation are three new standards: Rules for Building and Classing Steel Vessels for Service on Rivers, Canals, and Harbors of Continental Europe; Rules for Building and Classing Vessels of Fiber Reinforced Plastic, and "Guide for Scantlings of Aluminum Planing Vessels."

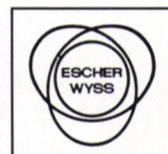
Discussing ABS research and development, Mr. Young said that ABS has been involved in a major project to evaluate the integrity of offshore structures by vibration calculations and onboard measurements. "The results of this project," he said, "could be of considerable benefit to the industry in both reduced inspection costs and early detection of potential problems."

In the first half of the year, Mr. Young said, ABS opened three new exclusive offices—in Gdansk, Poland, in Maracaibo, Venezuela, and in Malta. In July, a new Tech-



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(Drawing by J. Sachse, Hamburg)



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nical Office was opened in Manila, Philippines, to facilitate plan review and provide closer technical dialogue with the growing marine industry in that part of the world.

Reporting on the ABS group of wholly owned subsidiaries, Mr. Young said that ABS Computers, Inc., has been expanding as a computer service bureau, and now provides data processing service to many organizations. "We are optimistic about ABSCOMP's potential in this direction," Mr. Young added, "and we have increased our information storage and printing capacity to accommodate future expected demands from the ABS group of companies and throughout the industry.

Mr. Young said that ABS Worldwide Technical Services, Inc., is engaged in third-party quality assurance and certification services covering materials and machinery components for portal cranes, drilling equipment, chemical plants, oil refineries, and hydroelectric turbines located in Europe, Asia, the Middle East, and North and South America.

Mr. Young reported that a major current project of EXAM Company involves X-ray inspection of field welds in 440 miles of the Dome Pipeline. The Dome line runs from Calgary, Canada into Eastern United States, and EXAM is monitoring the section east of the Mississippi River. Additional EXAM assignments include X-ray inspection of other pipeline sections located primarily in Central and North Central United States.

APL Team To Analyze Systems Controlling Steam Plants On Ships

The Maritime Administration has awarded a cost-shared reimbursable no-fee contract in the amount of \$295,800 to American President Lines, Inc., 601 California Street, San Francisco, Calif. 94108, to analyze the characteristics of systems used to control steam propulsion plants on ships of the U.S. merchant marine. The overall objective of this work is to develop a systematic methodology for evaluating the control and monitoring equipment and related operating procedures aboard steam powered vessels to allow "fail-safe" control of the propulsion plant from a centrally located site. The team assembled to conduct this work consists of American President Lines, Inc., J.J. Henry Co., Inc., New York, N.Y., and Systems Control Incorporated, Palo Alto, Calif.

The project is divided into three phases. The Phase I objective is to isolate the throttle control system problems and potential problems which could be experienced by ship operators with current installations as they relate to the throttle and to develop engineering recommendations to alleviate identified throttle control system weaknesses. The Phase II objective is to ex-

pand the evaluation to include the steam propulsion control system, account for the effects of those subsystems interfaced with the throttle control system. The Phase III objective is to use the functional data collected and analyzed in Phases I and II to simulate the system in terms of failure modes and effects and to develop specifications for advanced centralized steam propulsion control systems.

Lockheed Shipbuilding Names Charles Krummen

Charles A. (Chuck) Krummen has been named director of production planning and control at Lockheed Shipbuilding and Construction Company, president G. Graham Whipple announced.

Mr. Krummen's previous assignments included serving as program manager for production of the Short Range Attack Mis-

sile (SRAM) propellant program at Lockheed Propulsion Company, Redlands, Calif.

An engineering graduate of the Aeronautical University of Chicago, Mr. Krummen has filled a series of manufacturing and program management posts with aircraft subcontractors in Wichita, Kan., Aerojet General Corporation in Sacramento, Calif., and Lockheed.

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Stow Introduces New Remote Valve Control Flexible Shaft

Stow Manufacturing Co. has just put on the market a new standard 3/8-inch-size remote valve control flexible shaft, which is ideal for manually remotely controlling all types of small valves in sizes up to those with 2-inch-diameter handwheels. This

new flexible shaft will transmit a maximum torque of 120 in./lbs. in a radius of bend as small as 7 in., and it has a torsional deflection of only 42 degrees per foot of length when at maximum load. This 3/8-inch "V.C." flexible shaft can be put up to any length desired.

By using this flexible shaft, it allows valves in congested areas to be easily controlled from a safer more convenient location

manually. It is often used on ships, in nuclear powerplants and industrial plants. This new 3/8-inch "V.C." flexible shaft is much safer than other means of remote operation as there are no exposed revolving parts, and because it is flexible it is very easy to install, even in areas with very complicated paths of transmission.

For more information on the new Stow standard 3/8-inch "V.C." flexible shaft, write to

Thom Holland, Stow Manufacturing Co., 86 Bump Road, Binghamton, N.Y.

U.S. Navy Officers Assigned To Kings Point



Capt. Robert Marshall

Two U.S. Navy officers have been assigned duties at the U.S. Merchant Marine Academy, Kings Point, N.Y.

Capt. **Robert Marshall**, a resident of Kings Point, has been selected to head the Department of Naval Science. Comdr. **James Perdew** of Garden City, N.Y., has been assigned as Protestant chaplain.



Comdr. James Perdew

A 1952 Academy graduate, Captain **Marshall** is in charge of the naval training which each Academy midshipman receives. The naval science program, extended over the normal four-year college curriculum, leads to commissioning as ensign, U.S. Naval Reserve.

Captain **Marshall** most recently served on the staff of the Chief of Naval Operations as Head, Sea-lift and Maritime Affairs Section. His 21-year active duty naval career has included shipboard assignments aboard destroyers and various auxiliary vessels, as well as a tour with Military Assistance Command in Vietnam.

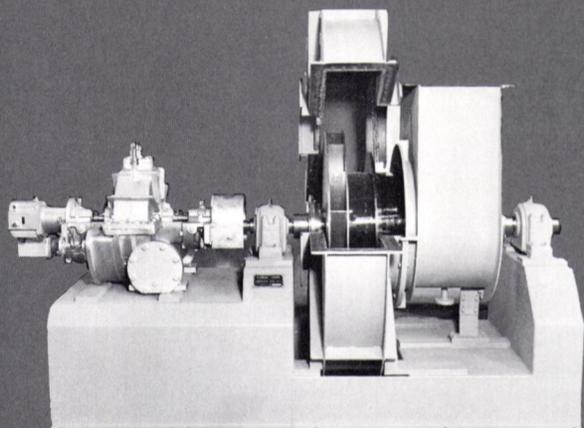
Captain **Marshall** sailed with Farrell Lines Incorporated before going on active naval duty, and attained a chief mate's license. He holds a master's degree in business administration from the U.S. Naval Postgraduate School in Monterey, Calif.

Commander **Perdew's** most recent tours have been aboard the USS Enterprise (CVN 65), and at the Navy Chaplain's School in Newport, R.I.

He attended William Jewell College, and completed theological studies at Midwestern Baptist Theological Seminary at Kansas City in 1963. He entered active naval duty that year.

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Owners Strongly Oppose Federal Financing Bank Control Of Title XI

For 39 years, the Title XI Federal Ship Mortgage Guarantee Insurance program has run smoothly and effectively. To bring it under control of the Federal Financing Bank, as now proposed, would only add another "layer of bureaucracy," cause interminable delays, and increase costs in administering the program.

Albert E. May, vice president of the American Institute of Merchant Shipping, the national shipowner association, testified to this before the House Ways and Means Committee. He urged that the Title XI ship financing assistance program, administered by the Secretary of Commerce under present law, "not be brought within the purview and control" of the Bank, as intended in H.R. 7918 to amend the Federal Financing Bank Act of 1973.

The Title XI program, established in 1938 by an amendment to the 1936 Merchant Marine Act, has since been updated a number of times, **Mr. May** said. "I would state without hesitation," he added, "that Title XI is the single most effective weapon in the Secretary of Commerce's arsenal for accomplishing the stated national policy goal set forth in the Act, namely that the United States should have a merchant marine sufficient to meet the needs of national defense and to support the requirements of domestic and international oceanborne commerce. Additionally, Title XI guarantees are available to assist in financing the construction of research, inland, fishing and drilling vessels.

In reviewing the Title XI program, **Mr. May** said the ceiling on outstanding Title XI obligations is \$7 billion, a modest sum considering the \$250 billion total for all federally guaranteed programs.

"The program is totally self-sustaining," he noted, "since each recipient of its benefits is required to pay an initial investigation fee, as well as an annual guarantee fee for the life of the obligation. These fees are paid into the Federal Ship Financing Fund which presently has a balance of about \$100 million. From this fund are deducted all of the salaries and other expenses incurred by the Government in administering the Title XI program, with the balance being available to make payments in the event of default. Since 1938, there have been only 10 defaults, involving a net cost to the fund after resale of the vessels totaling \$14.6 million. . . . It has been run efficiently and at no expense to the American taxpayers. It is not unreasonable, I think, for us to recommend that it remain unchanged."

The national shipping spokesman said H.R. 7918 would have four effects which, in essence,

would disrupt the program: (1) the Bank would be required to purchase all new Title XI obligations guaranteed by the Secretary of Commerce, (2) failure to sell those obligations directly to the Bank would result in a loss of their guarantee, (3) the Bank's ability to purchase Title XI guarantee obligations would be subject to Appropriations Acts, and (4) the Bank would be able to dictate the terms and conditions of Title XI obligations, and hence directly impact the financing of vessel construction.

The Title XI program, with an unbroken 39-year record of accomplishment, is completely under the control of the Secretary of Commerce and under the purview of the Congress, **Mr. May** pointed out. At no cost to the taxpayer and with minimal risk involved to the government, the Title XI program has assisted immeasurably in the construction and maintenance of a modern U.S. merchant fleet, has had the flexibility to maximize market pressures on interest rates, and the means to tailor financing to the needs of the user or the project involved.

"The enactment of H.R. 7918, as presently drafted, would seriously disrupt this program, would needlessly add an expensive and time-consuming layer of decision-making bureaucracy to the approval and issuance process, and would, by treating Title XI guarantees as an 'on-budget' item, create an erroneous and inflated impression of federal financing of the maritime industry," **Mr. May** concluded. "I urge that this measure not be adopted."

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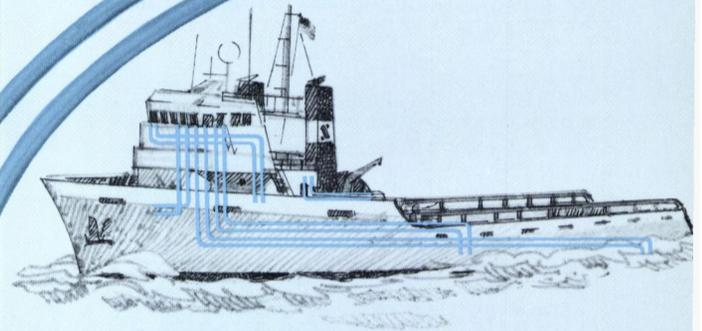
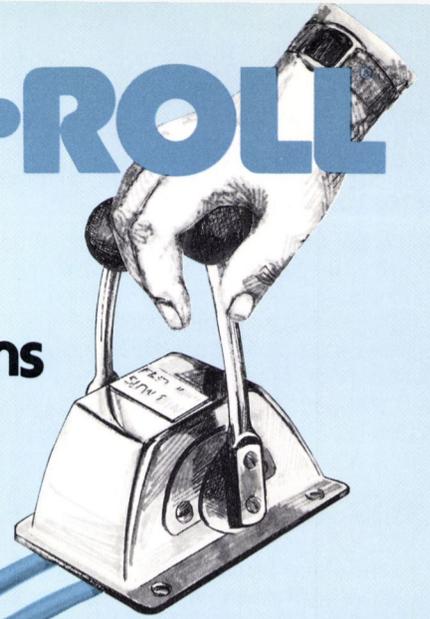
American Hydromath Company has furnished to American Trading Transportation Company, Inc., **LOADOSCOPE**, Multiship 500, a new digital office cargo-handling computer, programmed to accurately and rapidly calculate: Draft Fore and Aft, Stress, Deadweight, Trim and/or Stability (GM), etc., for every type and size of vessel in an entire fleet, all in a single instrument.

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For a complete description of the **LOADOSCOPE**, Multiship 500, write to **Robert M. Kristal**, American Hydromath Company, Buckwheat Bridge Road, Germantown, N.Y. 12526.

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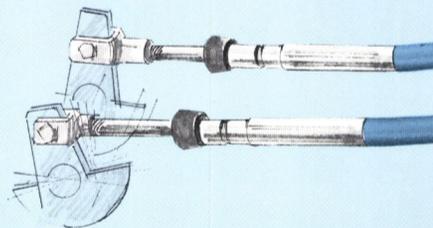
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Eleven New Members Elected To American Bureau Of Shipping

Eleven maritime executives from six countries were elected Members of the American Bureau of Shipping (ABS) at the semiannual meeting of the international ship classification society held in New York City. This brings to 385 the number of ABS Members. The new Members are:

Robert Stevens Bassett, vice president, InterOcean Management Corporation, Philadelphia, Pa.; **Robert D. Goldbach**, president, Navios Corporation, Nassau, Bahamas; **Thomas H. Feehan**, president, Brown & Root, Inc., Houston, Texas; **Clarence L. French**, president, National Steel and Shipbuilding Co., San Diego, Calif.; Rear Adm. **John D. Johnson**, Commander, Military Sealift Com-

mand, Washington, D.C.; **Moriyoshi Kadota**, president, Idemitsu Tanker Co. Ltd., Tokyo, Japan; **Blakely Smith**, Maritime Consultant, Houston, Texas; Vice Adm. **Jonas Correia da Costa Sobrinho**, president, Companhia do Lloyd Brasileiro, Rio de Janeiro, Brazil; **William H. White**, senior vice president, Davie S.B. Ltd., Lauzon, Quebec, Canada; **Kenneth E. Sheehan**, vice president, American Bureau of Shipping, New York, N.Y., and **Robert C.F. Ho**, managing director, Fairmont Shipping (H.K.) Ltd., Hong Kong.

The American Bureau of Shipping is a nongovernmental, worldwide ship classification society which establishes internationally recognized standards, called Rules, for the design, construction, and periodic survey of merchant vessels and other marine structures.

CCL Shipcare Limited New Marine Service

An entirely new marine servicing company which will operate on a worldwide basis is CCL Shipcare Limited of Winchester, Hampshire, England. CCL Shipcare, which was recently formed out of the established Continental Combustions Limited, is a subsidiary of the Petrocon Group, and offers a very wide range of professional, technical ships support services which have been designed to assist shipowners in keeping their vessels in profitable service. CCL specializes in engine room and propulsion machinery, and deck cargo-handling gear and is fully staffed with qualified marine engineers on immediate call to travel anywhere in the world, offering extensive practical knowledge of a great variety of marine equipment, machinery systems and the operational needs of tankers, containerships, cargo vessels, etc.

The CCL support services comprise of three divisions, all organized so that as much engineering work as is practically possible is carried out onboard on voyage, thus minimizing emergency breakdown costs and drydock, repair yard costs, etc.

The three divisions are: (1) Systems Engineering — A project engineering team of marine engineers offering a full contractual service from onboard technical survey through to design, installation and commissioning of complete machinery systems; (2) Technical Services — Experienced, specialist teams of marine engineers immediately available to be flown to vessels at sea, anywhere, anytime, to trouble-shoot, overhaul, etc., and assist ship crews with special technical problems, and (3) Equipment and Supplies — A professional procurement team of marine engineers experienced in providing fast and accurate identification of onboard need, location and replacement of machinery or spares, purchase of spares in most competitive market home or abroad, with continuous and skilled expediting from source to delivery—backup installation and commissioning services if required.

CCL Shipcare Limited is based in Winchester. Other work bases are in Egypt and Persian Gulf, and the company is represented in Glasgow, Copenhagen, Rotterdam, Goteborg, Oslo, New York, Houston, New Orleans, Singapore, Piraeus, and most recently Helsinki.

For further information about CCL Shipcare services or for literature, contact **A.C. Jones**, CCL Shipcare Limited, Easton Lane, Winnall, Winchester, Hants, England, and **Christopher Bolger**, Alexander Marine Associates, Inc., P.O. Box 1048, Port Washington, N.Y. 11050.

INTEROCEAN MANAGEMENT EQUIPS TANKER FLEET WITH KRUPP ATLAS RADARS! ATLAS 6500 BCA



ATLAS 16 in. Radar Display on Bridge of S/S Maryland

After extensive tests and evaluations of Krupp ATLAS 16 inch radars on the U.S. flag tankers S/S ALLEGIANCE (34,800 DWT) and S/S MARYLAND (264,000 DWT), InterOcean Management Corp., Philadelphia, decided to install ATLAS radars on a fleet wide retrofit program. On several of their U.S. flag vessels which went into service only last year, the radar equipment originally supplied was replaced by ATLAS radars. The ATLAS radars were supplied through Electro-Nav, Inc., New York.

Because of their proven reliability, InterOcean Management Corporation selected the ATLAS 16 inch radars with Basic Collision Avoidance features, types ATLAS 6500 BCA (3 cm, X-Band) and ATLAS 6500 S BCA (10 cm, S-Band). These radars feature:

- Automatic target detection at preset ranges with Dual Guard Zones
- Fast measurement of target range and bearing through electronic VRM and Electronic Bearing Marker (EBM)
- Easy plotting and fast situation assessment with reflection plotter and digital plot clock
- Checking of most threatening target through compass stabilized EBM
- Superb picture quality on all ranges from .3 to 72, nm through unique fully solid state transceivers for both X-Band and S-Band

For full collision avoidance capability, the ATLAS radars can be interfaced with Iotron, Sperry, or other collision avoidance systems. Full interswitching of the transmitters is available.



Mast with ATLAS S-Band & X-Band Antennas



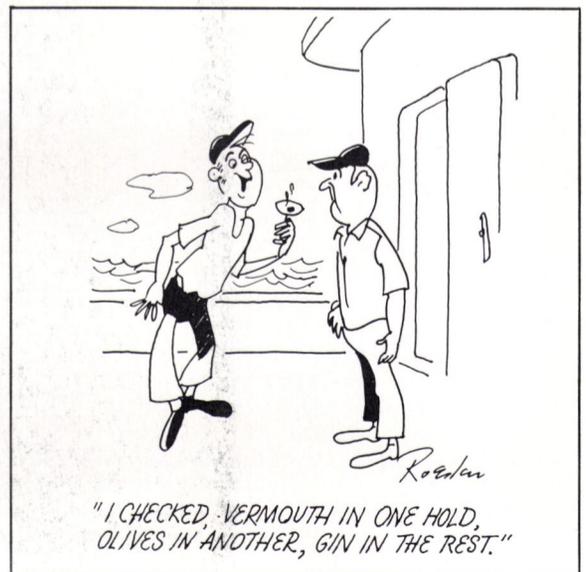
InterOcean Management Corporation Tanker S/S Maryland



KRUPP INTERNATIONAL, INC.
KRUPP ATLAS-ELEKTRONIK DIVISION
 P. O. BOX 58218, HOUSTON, TEXAS 77058 (713) 488-0784

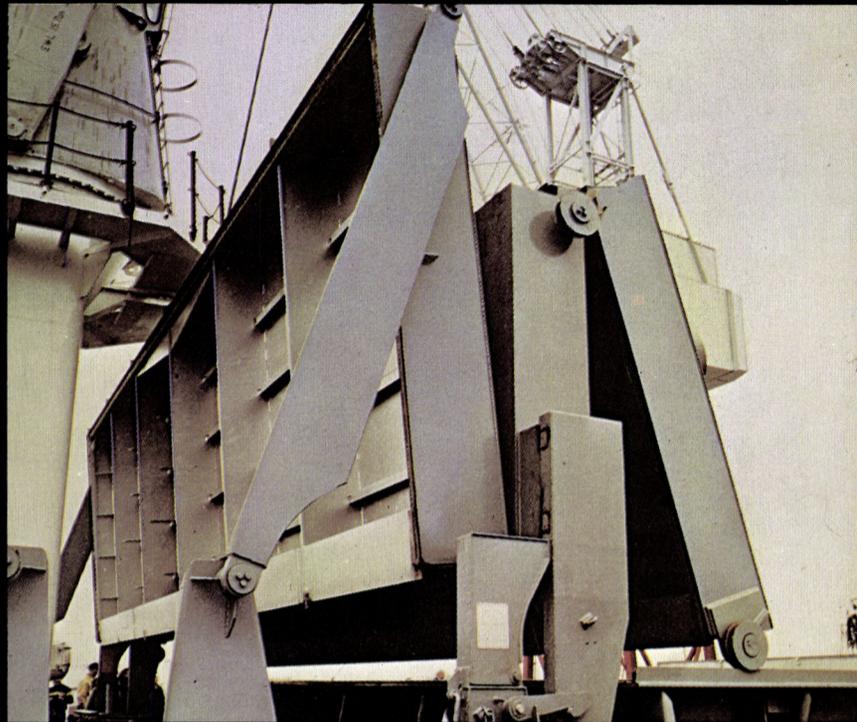
YES! I WOULD LIKE MORE INFORMATION PLEASE!
ATLAS 6500 BCA

NAME _____ TITLE _____
 COMPANY _____ PHONE _____
 CITY _____ STATE _____ ZIP _____
 TYPE OF VESSEL(S) _____

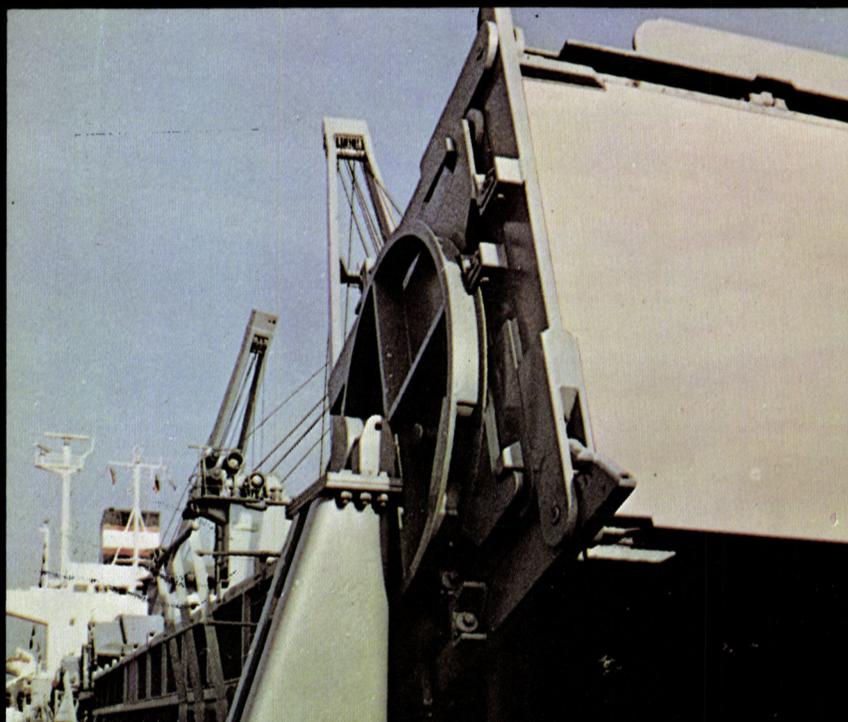


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**New Maritime Firm
Port Fabricators, Inc.
Active In Louisiana**

Port Fabricators, Inc., specializing in the design, construction, maintenance and repairs of facilities and equipment for the petroleum and marine industry, has recently been established at the Port of New Iberia, La. Occupying a 12-acre waterfront site, the

new industry represents a "total investment of over \$1,000,000 in land, buildings and equipment, and is expected to provide new job opportunities for over 200 Acadiana citizens within the next year," it was announced by **Louis J. Michot**, secretary-treasurer of the new Port of New Iberia industry.

Associated with Mr. Michot are **R.L. Burton**, president and general manager; **S.B. Kelly**, vice

president-engineering, and **Michael Keating**, director and sales. Mr. **Burton**, a native of Orange, Texas, attended North Texas University and Lamar Tech, and gained his experience through 14 years of steel and aluminum fabrication with Levingston Shipbuilding Company of Orange, Texas. He held the position of general fabrication superintendent at Levingston when he resigned to join Gulf Overseas, Inc.

in New Iberia. He was general manager of this firm before joining the Port Fabricators team. Mr. **Kelly**, of Lafayette, is a graduate of the University of Southwestern Louisiana in petroleum engineering, was formerly with Mobil Oil Co. as construction foreman, senior production foreman and engineer, and with Tenneco as area engineer. He has 10 years total experience in oil industry engineering and design. Mr. **Keating**, a Lafayette native, attended the University of Southwestern Louisiana, and has been active in business in the Lafayette area for several years, and has been recently engaged in heavy equipment sales for Road Equipment Company of Lafayette.

"Our company actually commenced operations in June and today we have some 50 employees, with our present contracts exceeding \$1,000,000 and an additional \$3.2 million under negotiation and on our drawing boards. Because of the diversified expertise of our key people, our capabilities cover the wide range from construction of onshore and offshore oil and gas structures of various types, to ship and barge building and repairs," stated Mr. **Burton**. "Although most of our current work is for oil-related firms serving the Gulf Coast area, we hope to sign agreements in our Shipbuilding Division for the construction of two 120-foot utility-cargo vessels for a large European operator, three fishing vessels for a Middle East country, and a 165-foot cargo-supply vessel for a south Louisiana boat company," he said.

Mr. **Michot**, who is former State Superintendent of Education and Lafayette Parish Legislator, and founder of the chain of Burger Chef Restaurants in Louisiana and Mississippi, has ventured into oil and gas activities in the last two years. He is president of Offshore Services & Transportation, Inc., a Lafayette-based firm operating a fleet of offshore crew-utility vessels in the Gulf of Mexico. The Lafayette native's other business interests are real estate development, insurance, oil and gas exploration, and banking.

**Chemical Firm Applies
For Title XI To Build
Two Tank Barges**

K.A. Steel Chemicals, Inc., 2700 River Road, Des Plaines, Ill., has applied to the Maritime Administration for a Title XI guarantee to aid in financing the construction of two 200-foot by 35-foot independent tank, chemical barges.

The barges, which will be used in the U.S. domestic waterway system, are to be constructed by Jeffboat, Inc., Jeffersonville, Ind.

The operating agreement with contract carriers who are to tow the vessels has not been finalized.

Philips launches a new generation of high-security radio-telex systems, designed to provide error free communications between ships at sea and telex terminals anywhere in the world.

The new STB-750 transmission error eliminator, inserted between the ship's HF receiver and a teleprinter, converts any shipboard or offshore radio room to a full fledged telex terminal. It offers the comprehensive ARQ/FEC capability of its predecessor, the STB-75,

now installed and operating on over 600 vessels and offshore platforms. And in addition, it provides selective FEC operation, keyboard dialing, end-of-communication facility, and many other features.

Best of all, it's built by Philips, the developers of the world's first ARQ, teleprinting-over-radio equipment over a decade ago. The company that equipped over 30 TOR coastal stations, and has far more experience in radio-telex than all other manufacturers combined.

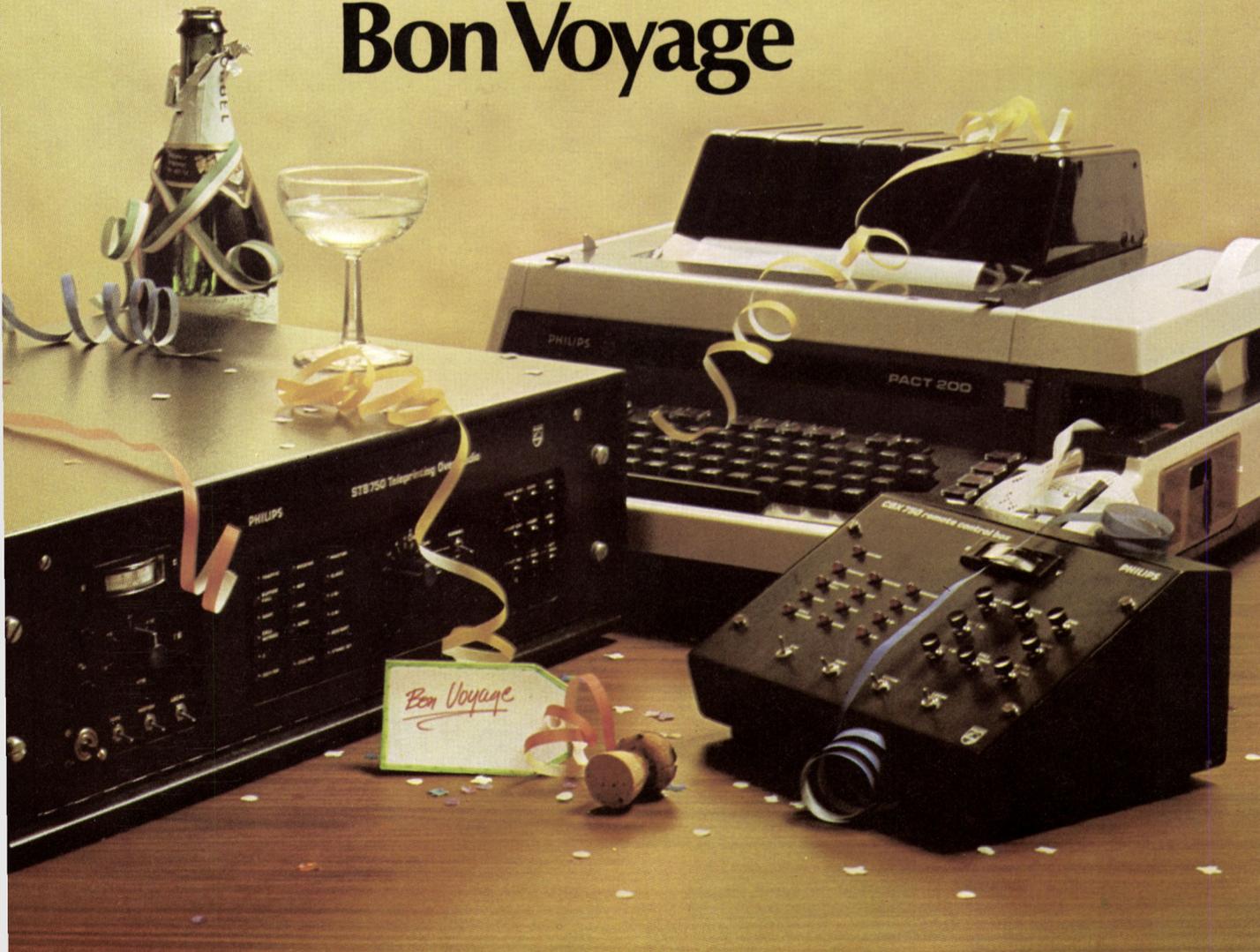
If you're concerned with shipboard communications, or you are a marine communications equipment dealer, contact Philips for complete STB-750 specifications. We'll help you launch your program.

In the USA, contact North American Philips Corp., Communications Systems Division, 31 McKee Drive, Mahwah, N.J. 07430. For other countries, contact Philips Telecommunicatie Industrie B.V., Hilversum, Netherlands.

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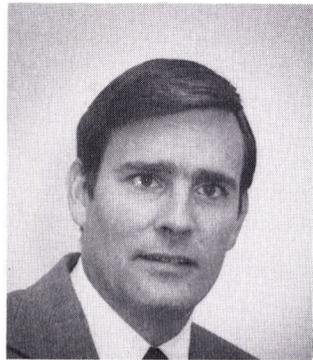
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Edwin G.B. Terry Joins Tidewater Marine Service



Edwin G.B. Terry

Edwin G.B. Terry has joined the sales staff of Tidewater Marine Service, Inc., a unit of Tidewater Inc., according to Sam S. Allgood, vice president of the worldwide offshore marine support company. Mr. Terry, who was previously vice president and director of marketing for TRW Mission Manufacturing of Houston, Texas, will be headquartered in Houston and be responsible for accounts in the Texas Gulf Coast area for the New Orleans, La.-based company.

Mr. Terry is a graduate of the University of Pennsylvania and holds an MBA degree from the Amos Tuck School of Business Administration, Dartmouth College, Hanover, N.H. He has an extensive background in marketing and marketing research and communications, especially in the area of petroleum-related drilling and production equipment. Mr. Terry joins David Antill in Tidewater's Houston sales office.

Waterproofed Engines On Self-Righting Lifeboat Restart Following Capsize

A British-made inshore search and rescue boat, used by the Royal National Life-Boat Institution and the Royal Navy for several years, is now available in the U.S. The Atlantic 21, a semirigid, self-righting craft with waterproofed engines and instrumentation, immediately restarts after a capsize.

The vessel's fiberglass planing hull ensures high speed (30+ knots); the inflatable, rubber sponson is buoyant and light. The boat's rigid bottom is divided internally by longitudinal bulkheads into watertight compartments. The "V" hull flattens out to a third of the craft's length for good planing under load, fast beaching (up to 20 knots) in an upright position, and easy trailer launch and recovery. Bailing is continuous through the open transom.

The easily removed neoprene sponson, comprised of two tubes, is attached to the hull by a sliding track system. The tubes, divided into seven buoyancy compartments, resist the effect of gasoline, oil and sunlight.

The craft's stability is increased when, with a maximum of 20 sur-

vivors onboard, the beam expands almost 100 percent. If it capsizes, however, the craft can be self-righted by one of the three crewmen. When he pulls a remotely operated handle, a bag (housed in an aft roll bar) attached to an air bottle inflates and forces the craft back into floating position in about 15 seconds. While capsized, the boat is automatically anchored.

Two launch and recovery systems can be used—either a tractor-propelled launch/recovery trailer for beach or slipway conditions, or a crane (or davit) and lifting eyes for handling the craft from a jetty or moving vessel.

The tractor-propelled trolley, which launches the boat in all conditions, is fitted with cooling-tanks to which the engines can be attached with plastic pipes. Thus,

the engines can be warmed up before the boat enters the water.

Overall length is 22 feet 3 inches, usual beam is 7 feet 8 inches, and draft is 2 feet 6 inches with engines down.

For additional information, write to Charles Irwin, The Charles P. Irwin Yacht Brokerage Inc., P.O. Box 3044, Bahai Mar Yachting Center, Fort Lauderdale, Fla. 33316.



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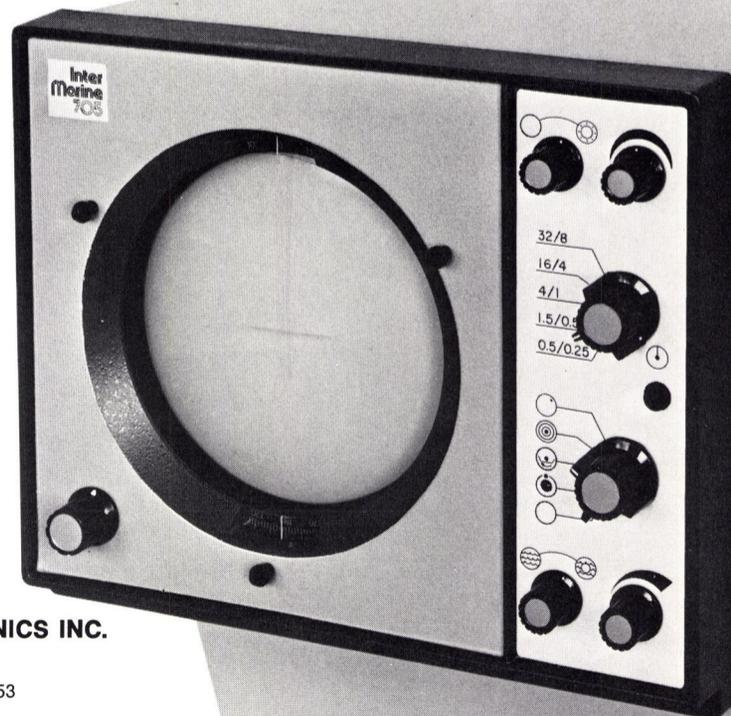
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Marine Electronics...From Those Who Really Care

**Lloyd's Register
Announces Major
Changes For 1978**

The latest edition of Lloyd's Register of Shipping "Rules and Regulations for the Classification of Ships" will be issued later this year and become effective on January 1, 1978. In addition to the many major technical Rule

changes which have been made, subscribers will see a great difference in the appearance of the publication.

A complete restructuring exercise has transformed the former bound volume into a loose-leaf A4-size style in which the Rules are organized in seven basic parts with 61 individual chapters. Annual publication will cease, and will be replaced by a system of

issuing amended sections to subscribers in January and June of each year.

A major change in philosophy is embodied in the 1978 Rules, and this recognizes the need to verify scantlings by direct calculation in certain areas on a wide range of ship types and components. It has thus been necessary to document many more of Lloyd's Register's calculation procedures

and refer to them directly in the Rules. Where direct calculations are required to be carried out, the loads to be applied and the permissible levels of design criteria are presented to the user. As a complementary operation, Lloyd's Register has installed Hewlett Packard 9830A desk top computers at 12 plan approval offices throughout the world. Programs covering both Rules and direct calculation procedures are available for these machines and for compatible machines owned by clients. Subscribers to this service automatically receive updated programs on cassettes embodying any Rule changes as they are incorporated into the Rules.

Bryan Hildrew, managing director of Lloyd's Register, referred to another important change. "In the new Rules, we have adopted a modular system of grouping together all technical information on specific ship types. Within this new format, a separate chapter relates to the midship section of each ship type. This is most important for designers, as they need to prepare the midship section as quickly as possible to enable them to get out estimates of steel weight and costs for tenders. In addition, where the designer is using Lloyd's Register's own direct calculation procedures, he knows that his plans will be approved with the minimum of delay."

The modular system of grouping together information on specific ship types also makes it easier to introduce changes without rewriting or affecting other sections of the Rules.

As regards the section on materials for ship and machinery construction, the new Rules have been rearranged in a more logical sequence, with chapters dealing with different product forms. New sections have been added to cover the Quality Assurance Scheme for Materials, and in addition detailed requirements for low-temperature steels, austenitic stainless steels and special quality plates with specified through thickness properties, have been added.

On the machinery side of the Rules, the requirements for pumping and piping systems have been completely rewritten and updated. The Rules for main propulsion shafting have been amended, leading to some reductions in allowable shaft diameters, in particular for some propeller shafts, and lengths of bush bearings. In addition, requirements for keyless propellers have been included, and the manufacturing requirements for gearing have been expanded.

Another important change is that the Rules for marine refrigerated cargo installations have been completely revised to take account of advances in refrigeration engineering technology and changing patterns of refrigerated cargo transportation.

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The section on fire detection, prevention and extinction has been completely rewritten.

A major revision of the Rules such as this has involved the coordination of an immense amount of effort in technical, editorial and production departments. A steering committee was established in 1974 to study the format of the Rules and to make recommendations for their improvement. It has also met weekly since January 1976 to provide direction and monitor progress.

Mr. Hildrew said: "We recognized the need to present the Rules in a more logical sequence to make them easier for subscribers to use, and while there have been substantial changes to the 1976 Rules (no Rules were issued in 1977—deliberately), the Society hopes the restructuring of the 1978 Rules will enable the user to more effectively expedite his designs."

The Rules are now organized in seven basic parts with 61 individual chapters as follows:

PART 1. Classification regulations.

PART 2. Requirements for materials used for ship and machinery construction, including requirements relating to steel plates, castings, forgings, pipes and tubes and welding consumables.

PART 3. The basic structural design philosophy of hull construction, longitudinal strength, aft-end structures, superstructures, etc.

PART 4. Hull construction requirements for specific ship types, e.g., tugs, ferries, bulk carriers, oil tankers, and containerships. (Two new class notations have been introduced — "100A1 Bulk Carrier," and 100A1 Container Ship.")

PART 5. Main and auxiliary machinery, including shaft vibration and alignment and piping systems for oil and chemical tankers.

PART 6. Automation and control systems, electrical systems, refrigeration systems, and fire prevention systems.

PART 7. Highly specialized ships to which the format of the rest of the Rules cannot easily be applied, e.g., nuclear ships.

The complete set of the 1978 Rules will cost \$150, which includes the service of providing updated sections for a period of five years. However, "Extracts" from the Rules will continue to be available at prices from \$1.75 to \$29.75, depending on the size and content of each extract. The price includes an updating service.

German, French and Spanish editions of the New Rules will be available early next year.

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A new 24-page brochure is available describing the engineering, construction, installation and design capabilities of the DeLong Corporation.

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For a free copy of this brochure, contact **Donald J. MacPherson**, Operations Manager, DeLong Corporation, 29 Broadway, New York, N.Y. 10006.

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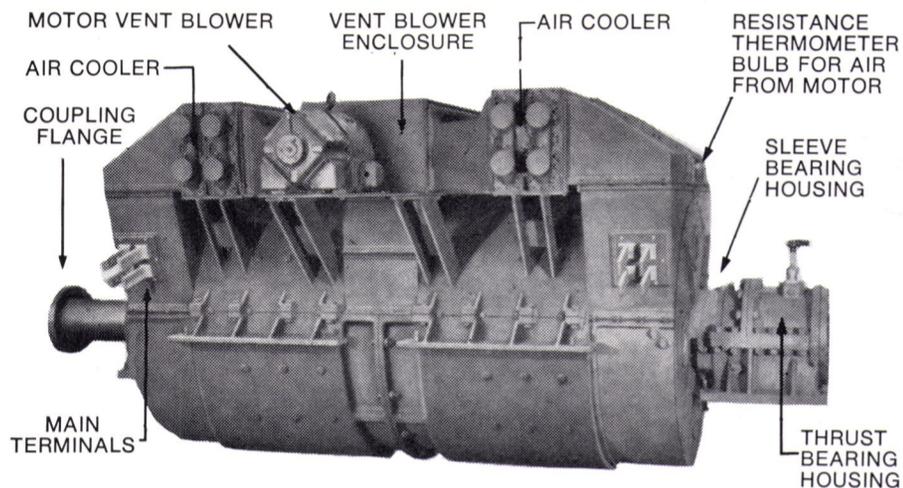
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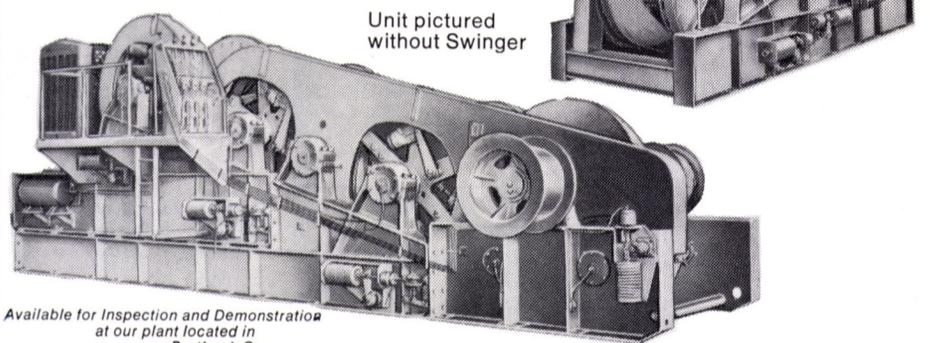
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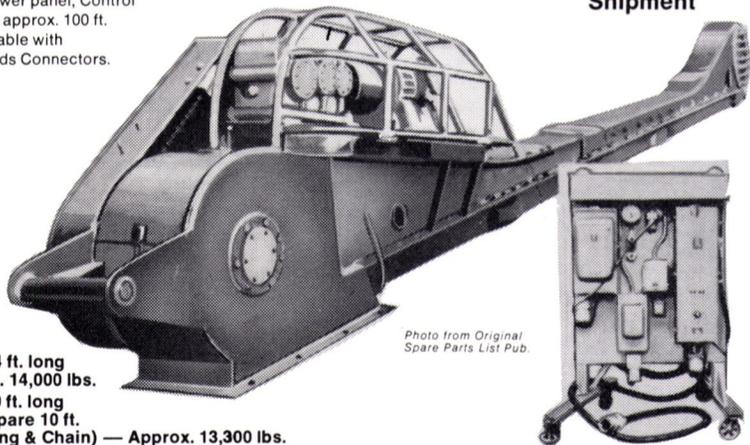
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CAPACITY: Up to 150 Tons of Wheat per hour (prox. Max. Material Size 2" to 3").
 Will Handle — Grain, Soy Beans, Phosphate, Nitrate, Potash, Kaolin, China Clay, Fertilizer, Alfalfa Pellets and other similar bulk materials.

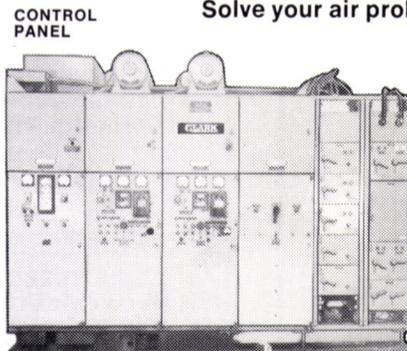
- Reasonably Priced
- Ready to work NOW!
- Immediate Shipment

CONDITION USED-EXCELLENT and priced to move NOW!

• **WRITE FOR FREE BROCHURE**

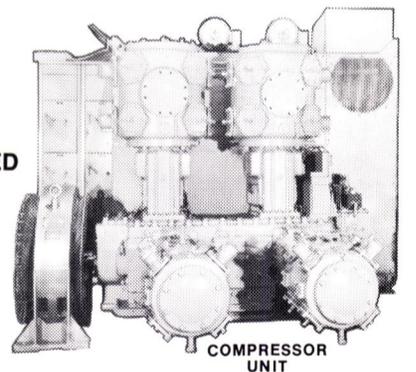
4 only—2500 C.F.M., 125 P.S.I. AIR COMPRESSORS

Solve your air problems with these units and save!



Manufactured by Clark—Model CMA, Horizontal Opposed Cylinder Design. Powered by 500 H.P. Synch. Motor, 2400/4160 volts, 3 Phase, 60 Cycle, 600 RPM, and includes Starter.

Equipped with Self Contained, Closed Water System, Radiator Cooled.



- 1 — UNIT IS COMPLETELY OVERHAULED
- 1 — UNIT, USED — AS IS
- 2 — UNITS ARE INSTALLED IN A RAILWAY CAR.
- 2 — Railway Cars are available for these units, if so desired.

These Compressors are skid mounted, packaged units. They were originally installed in railway cars as Emergency Air Supply on the West Coast by the Navy Bureau of Yards and Docks.

Ideal for Shipyard or other large volume air consumers.

For additional information and Quotation, Please Contact:

Hugh Sturdivant

Sales Manager, Marine & Industrial Sales Div.

Phone: 503/228-8691

Telex: 36-0503 • Cable: "ZIDELL"

Marine and Industrial Sales Division of

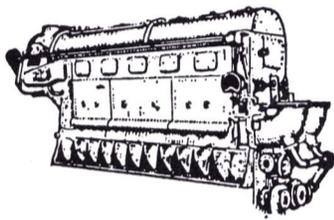
ZIDELL
EXPLORATIONS, INC.
 3121 S.W. Moody
 Portland, Oregon 97201

SHIPBOARD EQUIPMENT

From
ZIDELL EXPLORATIONS
INC.

Contact: Hugh Sturdivant
3121 S. W. Moody Ave., Portland, Ore. 97201
Telex: 36-0503 • Cable "ZIDELL"
PHONE: A/C 503 • 228-8691

MARINE DIESEL ENGINES



MATCHED PAIR . . . FAIRBANKS-MORSE Model 38D8-1/2 — 1 Port; 1 Starboard. Used condition, 1800 HP, 800 RPM, 2 cycle, 8 1/2" bore, 10" stroke, Air Start.. Complete with Westinghouse Reduction Gears, 2.216:1 ratio —with Hydraulic Coupling.

MARINE DIESEL GENERATORS

4—COOPER - BESSEMER, Marine . . . Model FSN 6, 6 cylinders, 375 HP, 900 RPM with General Electric generators, 250 KW 440/3/60.

2—SUPERIOR Diesel Engines . . . Model GBD8 Marine, 150 HP, 1200 RPM, 8 cylinder, with Delco Generators, 100 KW, 120/240 DC.

4—GENERAL MOTORS, Model 3-268A, marine, 150 BHP, 1200 RPM, 3 cylinders, with 100 KW Generators, 450/3/60.

3—GENERAL MOTORS, Model 3-268A, Marine, 150 HP, 1200 RPM, 3 cylinders, with Allis-Chalmers Generators, 100 KW, 120/240 DC.

Many other units in stock

TURBINE GENERATORS—AC and DC Voltage

A. C.

4 — 1250 KW, GENERAL ELECTRIC Turbines: Type FSN, 525 PSI, 7938 RPM. Generators: 1250 KW, 450/3/60, 3600 RPM, Type ABT2.

7 — 750 KW, GENERAL ELECTRIC Turbines: Type FN3-FN24, 525 PSI, 10,033 RPM. Generators: 750 KW, 450/3/60, 1200 RPM, Type ATI.

2 — 500 KW, GENERAL ELECTRIC Turbines: Type FN3-FN20, steam 375/425 PSI, 6 Stage, 9987 RPM. Generators: 500 KW, 450/3/60, 1200 RPM, Type ATI.

D. C.

1 — 400 KW, WORTHINGTON Turbine, 200 PSI with Crocker-Wheeler Generator, 400 KW, 120/240 Volts DC, Type CDC, 1200 RPM.

7 — 300 KW, ALLIS-CHALMERS Turbines, 440 PSI, 5645 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, WESTINGHOUSE Turbines, 440 PSI, 5920 RPM, with Westinghouse Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

2 — 300 KW, TERRY Turbines, 440 PSI, Type TM-5, 5965 RPM, with Crocker-Wheeler Generators, 300 KW, 120/240 Volts DC, 1200 RPM.

1 — 300 KW, ALLIS-CHALMERS Turbine, 440 PSI, 470 HP, 8000 RPM, with Allis-Chalmers Generator, 300 KW, 240/240 Volts DC, Type HO, 1200 RPM.

1 — 250 KW, DE LAVAL Turbine, 440 PSI, 360 HP, 10,000 RPM, with Crocker-Wheeler Generator, 250 KW, 240/120 Volts DC, Type CCD, 1200 RPM.

12 — 60 KW, WESTINGHOUSE Turbines, 89.4 HP, 200 PSI, 7283 RPM, Type M-20-EH, with Westinghouse Generators, 60 KW, 120 Volts DC, 1800 RPM.

DELAVAL, 450 PSI, 750°F, 300 KW, 120/240 DC.

**FAST REPLIES
ON YOUR
INQUIRIES!**



A partial listing of our stock from **EX-NAVY and MARITIME VESSELS**

Certifications to A.B.S. or Lloyd's a routine

SEE OUR 2-PAGE SPREAD IN ALTERNATE ISSUES OF M.R.



Rebuilt and Guaranteed

AXIAL FLOW FANS

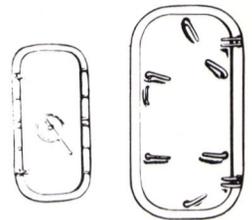
LaDel, Sturtevant, etc.
In 440 AC, in 115 DC, and in 230 DC, and in sizes 1 HP through 20 HP. Completely reconditioned.

EXAMPLE LISTING:

Size A 1/4	Size A3	Size A8
Size A 1/2	Size A4	Size A10
Size A1	Size A5	Size A12
Size A2	Size A6	Size A16

STEEL WATERTIGHT DOORS

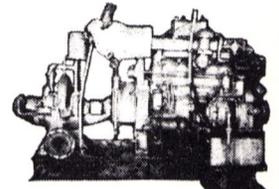
Used, Good Condition, Trimmed Frames.



Many sizes available, priced reasonable. Some Typical Prices shown below. Please Inquire for other sizes.

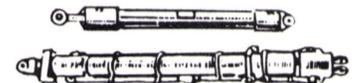
26"x48"-4 Dogs—\$60.00 ea.
26"x57"-6 Dogs—\$80.00 ea.
26"x60"-4 Dogs, 6 Dogs—\$86.00 ea.
26"x66"-6 Dogs, 8 Dogs—\$100.00 ea.
26"x66"-Q.A. Type—\$175.00 ea.

FIRE PUMPS



2—BUDA, Model 6-LD-468, Diesel Engines 6 cylinders, 100 BHP, Marine, Gardner Denver, centrifugal Pumps, Bronze, horizontally split case, 1000 GPM, 280' head, 6" suction and 5" discharge.

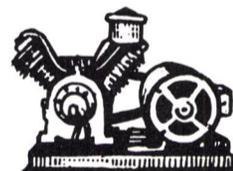
HYDRAULIC CYLINDERS



Bore	Overall Stroke	Rod Diameter	Retracted Length	Action
10"	12"	3.75"	45 1/2"	double
10"	26"	3.75"	58 1/2"	double
2"	8"	1 1/2"	20"	double
2.5"	15"	1.12"	25 1/2"	double
3"	8"	1.37"	15 1/2"	double
6"	8"	4"	144"	double

Electro-Mechanical STEERING GEAR

1—SPERRY No. 2, 5 HP, 230 Volts DC, complete with Steering Winch, Controller Panel, Ballast Resistor, Electro-Mechanical Steering Stand—with Steering Wheel (with Pull-out Knob).



AIR COMPRESSORS

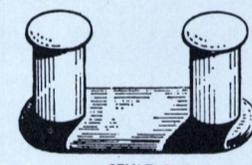
1—GARDNER-DENVER, 150 CFM, 125 PSI, Class WB, Size 7x5 1/4 x5, with Diehl Motors, 45 HP, 230 Volts DC, 870 RPM, 167 Amperes.

3—INGERSOLL - RAND, Size 5x5x4x4, 50 CFM, 150 PSI, with G.E. Motor, 20 HP, 440/3/60.

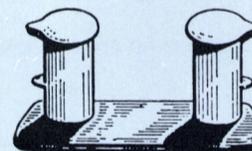
1—INGERSOLL - RAND, Model 40B, 155 CFM, 110 PSI, 870 RPM, with 40 HP Motor, 230 DC.

2—WORTHINGTON, 20 CFH, 3000 PSI, 4 stage, 585 RPM, with Worthington Steam Turbine, 47 HP, 5502 RPM.

DOUBLE BITS



STYLE A



STYLE B

Used, clean, good, suitable for reuse. Predominantly 12" and 14" sizes, 2 styles. Many other sizes in stock, ranging from 6" to 18".

Specify quantity, size and style required for fast quotation.

ANCHOR CHAINS

USED - GOOD



1 3/8" Size	2 1/4" Size
1 1/2" Size	2 3/8" Size
2 1/8" Size	

FOR MARINE VALVES AND FITTINGS: A/C 503, 228-8691, ASK FOR "VALVE DIVISION."

FOR ELECTRICAL EQUIPMENT: A/C 503, 228-8691, ASK FOR "ELECTRICAL DIVISION."

Braswell Shipyards, Inc. is presently accepting resumes for the following positions:

Safety Director —
Boston Facility

Estimator —
Boston and Charleston, SC Facilities

Ship Supervisor —
Boston and Charleston, SC Facilities

Machinery Foreman —
Boston and Charleston, SC Facilities

Sheet Metal Supervisor —
Boston and Charleston, SC Facilities

Hull Superintendent —
Boston and Charleston, SC Facilities

Must have commercial shipyard experience. Please forward resume to:

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BRASWELL SHIPYARDS, INC.

WILSON is STEAMSHIP!

We have served the Shipping Industry exclusively for nearly 40 years and maintain an active file of people experienced in all of its phases — including Port Engineers, Ship Construction Supervisors, M&R, sales, etc. — to relocate anywhere.

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- **Marine Engineer**

The continued growth of Giannotti & Buck Associates, Inc., has resulted in the need to expand our professional staff in the commercial and naval ship design area. Candidates for Naval Architect should have experience in hull structure, hydrostatics, and weights and arrangements. Candidates for Marine Engineer should have experience in propulsion, auxiliaries, and electrical systems. Both must be graduate engineers with a minimum of two years' experience. Salary will be commensurate with education and experience. Please send resume to:

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CONTINUED GROWTH IN NEW SHIP CONSTRUCTION OFFERS AN EXCEPTIONAL OPPORTUNITY FOR A RESULTS-ORIENTED INDIVIDUAL. REQUIREMENTS INCLUDE A 4-YEAR DEGREE, PREFERABLY IN ENGINEERING OR ONE OF THE SCIENCES. PREVIOUS EXPERIENCE IN SHIP BUILDING OR REPAIR, IN A SMALL TO MID-SIZE SHIPYARD, IS DESIRABLE. OTHER APPLICABLE MILITARY OR MARINE OPERATOR EXPERIENCE WILL BE CONSIDERED. PLEASE SEND RESUME, INCLUDING SALARY HISTORY, TO:

PERSONNEL MANAGER
ATLANTIC MARINE, INCORPORATED
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FT. GEORGE ISLAND, FL 32226
(15 MILES N.E. OF JACKSONVILLE, FL)

Equal Opportunity Employer M/F

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MARINE DESIGNERS**

A prominent Naval Architectural Firm desires to expand its staff and has openings, on the East Coast, for experienced Marine Engineers in the following:

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Electrical Engineer**

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**Marine Vessel Coordinator
STAMFORD, CT**

Responsible for all traffic matters including ordering tankers, purchasing bunkers, agency appointments, voyage analysis, laytime and performance statements. Graduate of Maritime College with tanker experience or equivalent preferred. Send resume to:

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Civil Service position open at Sturgeon Bay, Wi: Shipbuilding, Conversion & Repair Naval Facility. Requires a B.S. in Naval Architecture or equivalent plus 3 years of professional engineering experience. Full Civil Service Benefits. Salary based on qualifying grade level. Application forms may be obtained at local Civil Service offices or contact: Consolidated Civilian Personnel Office, Bldg 1, Rm M30, Great Lakes, IL 60088, Attn: David Parker, 312-688-2222. An equal opportunity employer M/F.

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Marine new construction/ship repair estimator with experience in ships, barges, small powered vessels or marine drilling platforms. Principal background can be in steelwork or outfitting. Salary commensurate with experience and ability. Excellent working conditions and fringe benefits.

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Position open in rapidly expanding Naval Architectural firm in the S.E. Must be familiar with electrical, mechanical, piping, HV & AC etc. Will train for position with chief engineer in near future. Familiarity with Navy Vessels not required. . . .

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**FOR SALE:
Vessel and Business**

M/V "Moss Harbor"—Coast Guard Certified Freight Vessel—Lakes, Bays, Sounds and Cook Inlet Alaska. Presently engaged on Cook Inlet Alaska in beach landing, Platform supply, overpipeline diving and research work. Completely fitout and sailing. 200 ton cargo capacity or four forty foot trailers roll on roll off. Can carry Hydro carbons on deck

WANTED

Established South Louisiana shipyard is looking for a combination Metallurgist and Welding Engineer. Excellent

SHIP FOR SALE

283'x42'x21' Steel Hull — Built 1951 to German Lloyds. Elec. Cargo Gear, 3-5 Tons Booms, 4 Holes, D.W. 2994,

**MONTHLY MARINE SPECIALS
FOR SALE**

A — STEEL DIESEL TUGBOATS
(a) Built 1952 (Single Screw)
100' x 26' x 12.8' 1600 HP \$395,000.00

**RIVER TERMINAL
DEVELOPMENT
COMPANY**

**Europe's Largest Marine Stocks
FACTORY RECONDITIONED**

WITH CERTIFICATES
Anchor (1500) (60) Generators

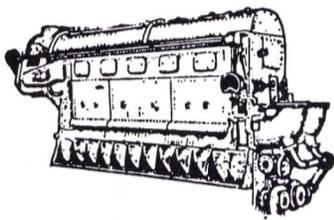
SHIPBOARD EQUIPMENT

From

ZIDELL EXPLORATIONS INC.

Contact: Hugh Sturdivant
3121 S. W. Moody Ave., Portland, Ore. 97201
Telex: 36-0503 • Cable "ZIDELL"
PHONE: A/C 503 • 228-8691

MARINE DIESEL ENGINES



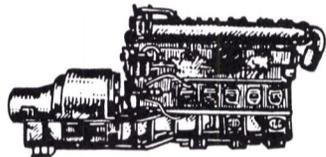
MATCHED PAIR . . . FAIRBANKS-MORSE Model 38D8-1/2 — 1 Port; 1 Starboard. Used condition, 1800 HP, 800 RPM, 2 cycle, 8 1/2" bore, 10" stroke, Air Start. Complete with Westinghouse Reduction Gears, 2.216:1 ratio —with Hydraulic Coupling.

MARINE DIESEL GENERATORS

4—COOPER - BESSEMER, Marine . . . Model FSN 6, 6 cylinders, 375 HP, 900 RPM with General Electric generators, 250 KW 440/3/60.

2—SUPERIOR Diesel Engines . . . Model GBD8 Marine, 150 HP, 1200 RPM, 8 cylinder, with Delco Generators, 100 KW, 120/240 DC.

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3—GENERAL MOTORS, Model 3-268A, Marine, 150 HP, 1200 RPM, 3 cylinders, with Allis-Chalmers Generators, 100 KW, 120/240 DC.

Many other units in stock

TURBINE GENERATORS—AC and DC Voltage

A. C.

4 — 1250 KW, GENERAL ELECTRIC Turbines: Type FSN, 525 PSI, 7938 RPM. Generators: 1250 KW, 450/3/60, 3600 RPM, Type ABT2.

7 — 750 KW, GENERAL ELECTRIC Turbines: Type FN3-FN24, 525 PSI, 10,033 RPM. Generators: 750 KW, 450/3/60, 1200 RPM, Type ATI.

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D. C.

1 — 400 KW, WORTHINGTON Turbine, 200 PSI with Crocker-Wheeler Generator, 400 KW, 120/240 Volts DC, Type CDC, 1200 RPM.

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12 — 60 KW, WESTINGHOUSE Turbines, 89.4 HP, 200 PSI, 7283 RPM, Type M-20-EH, with Westinghouse Generators, 60 KW, 120 Volts DC, 1800 RPM.

DELAVAL, 450 PSI, 750° F, 300 KW, 120/240 DC.

**FAST REPLIES
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A partial listing of our stock from EX-NAVY and MARITIME VESSELS

Certifications to A.B.S. or Lloyd's a routine

SEE OUR 2-PAGE SPREAD IN ALTERNATE ISSUES OF M.R.



Rebuilt and Guaranteed

AXIAL FLOW FANS LaDel, Sturtevant, etc.

In 440 AC, in 115 DC, and in 230 DC, and in sizes 1 HP through 20 HP. Completely reconditioned.

EXAMPLE LISTING:

Size A 1/4	Size A3	Size A8
Size A 1/2	Size A4	Size A10
Size A1	Size A5	Size A12
Size A2	Size A6	Size A16

Electro-Mechanical STEERING GEAR

1—SPERRY No. 2, 5 HP, 230 Volts DC, complete with Steering Winch, Controller Panel, Ballast Resistor, Electro-Mechanical Steering Stand—with Steering Wheel (with Pull-out Knob).



AIR COMPRESSORS

1—GARDNER-DENVER, 150 CFM, 125 PSI, Class WB, Size 7x5 3/4 x5, with Diehl Motors, 45 HP, 230 Volts DC, 870 RPM, 167 Amperes.

3—INGERSOLL - RAND, Size 5x5x4x4, 50 CFM, 150 PSI, with G.E. Motor, 20 HP, 440/3/60.

1—INGERSOLL - RAND, Model 40B, 155 CFM, 110 PSI, 870 RPM, with 40 HP Motor, 230 DC.

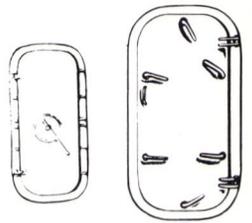
2—WORTHINGTON, 20 CFH, 3000 PSI, 4 stage, 585 RPM, with Worthington Steam Turbine, 47 HP, 5502 RPM.

FOR MARINE VALVES AND FITTINGS: A/C 503, 228-8691, ASK FOR "VALVE DIVISION."

FOR ELECTRICAL EQUIPMENT: A/C 503, 228-8691, ASK FOR "ELECTRICAL DIVISION."

STEEL WATERTIGHT DOORS

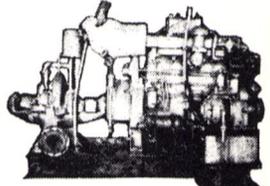
Used, Good Condition, Trimmed Frames.



Many sizes available, priced reasonable. Some Typical Prices shown below. Please Inquire for other sizes.

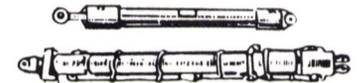
26" x 48"-4 Dogs—\$60.00 ea.
26" x 57"-6 Dogs—\$80.00 ea.
26" x 60"-4 Dogs, 6 Dogs—\$86.00 ea.
26" x 66"-6 Dogs, 8 Dogs—\$100.00 ea.
26" x 66"-Q.A. Type—\$175.00 ea.

FIRE PUMPS



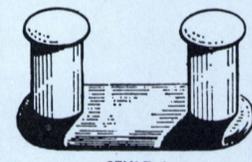
2—BUDA, Model 6-LD-468, Diesel Engine: 6 cylinders, 100 BHP, Marine, Gardner Denver, centrifugal Pumps, Bronze, horizontally split case, 1000 GPM, 280' head, 6" suction and 5" discharge.

HYDRAULIC CYLINDERS

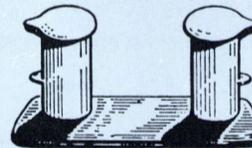


Bore	Overall Stroke	Rod Diameter	Retracted Length	Action
10"	12"	3.75"	45 1/2"	double
10"	26"	3.75"	58 1/2"	double
2"	8"	1 1/2"	20"	double
2.5"	15"	1.12"	25 1/2"	double
3"	8"	1.37"	15 1/2"	double
6"	8"	4"	144"	double

DOUBLE BITS



STYLE A



STYLE B

Used, clean, good, suitable for reuse. Predominantly 12" and 14" sizes, 2 styles, Many other sizes in stock, ranging from 6" to 18".

Specify quantity, size and style required for fast quotation.

ANCHOR CHAINS USED - GOOD



1 3/8" Size	2 1/4" Size
1 1/2" Size	2 3/8" Size
2 1/8" Size	

Braswell Shipyards, Inc. is presently accepting resumes for the following positions:

Safety Director —
Boston Facility

Estimator —
Boston and Charleston, SC Facilities

Ship Supervisor —
Boston and Charleston, SC Facilities

Machinery Foreman —
Boston and Charleston, SC Facilities

Sheet Metal Supervisor —
Boston and Charleston, SC Facilities

Hull Superintendent —
Boston and Charleston, SC Facilities

Must have commercial shipyard experience. Please forward resume to:

P. O. Box 317, Mt. Pleasant, SC 29464

Equal Employment Opportunity Employer M/F



BRASWELL SHIPYARDS, INC.

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CONTINUED GROWTH IN NEW SHIP CONSTRUCTION OFFERS AN EXCEPTIONAL OPPORTUNITY FOR A RESULTS-ORIENTED INDIVIDUAL. REQUIREMENTS INCLUDE A 4-YEAR DEGREE, PREFERABLY IN ENGINEERING OR ONE OF THE SCIENCES. PREVIOUS EXPERIENCE IN SHIP BUILDING OR REPAIR, IN A SMALL TO MID-SIZE SHIPYARD, IS DESIRABLE. OTHER APPLICABLE MILITARY OR MARINE OPERATOR EXPERIENCE WILL BE CONSIDERED. PLEASE SEND RESUME, INCLUDING SALARY HISTORY, TO:

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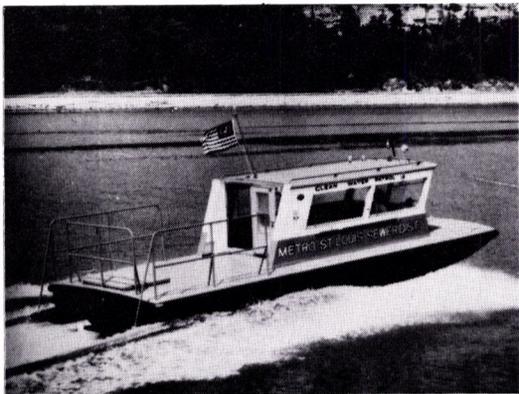
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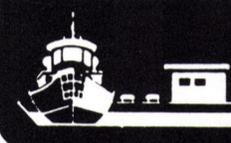
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Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Beaver Tool & Machine Co., 525 S.E. 29th St., Oklahoma City, OK 73109
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
Nicolai Jaffe Corp., P.O. Box 2445, 445 Littlefield Ave., So. San Francisco, Calif. 94080
Merrin Electric, 1120 Clinton Street, Hoboken, N.J. 07030
Thompsons Marine Supply, Inc., 11 Broadway, New York, N.Y. 10004
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

FAIRLEADS—Blocks and Rigging

Crosby Group, Box 3128, Tulsa, Okla. 74101

FANS—VENTILATORS

Aerovent, Inc., #1 Aerovent Drive, Piqua, Ohio 45356
Camar Corp., 186 Prescott St., Worcester, Mass. 01605
Coppus Engineering Corp., 344 Park Avenue, Worcester, Mass. 01610
Dasic International Corp., 1035 Southeast Ninth Street, Portland, OR 97214
Merrin Electric, 1120 Clinton Street, Hoboken, N.J. 07030
Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

FENDERING SYSTEMS—Dock & Vessel

Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062
Morse Chain Company, Div. Borg Warner, So. Aurora St., Ithaca, N.Y. 14850

FINANCING—Leasing

General Electric Credit Corp., P.O. Box 8300, Stamford, Conn. 06904
Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005
Lazard Freres & Co., One Rockefeller Plaza, New York, N.Y. 10020
Lehman Brothers Inc., One Williams Street, New York, N.Y. 10004
Manufacturers Hanover Leasing Corp., 350 Park Av., N. Y., N.Y. 10022
Warburg Paribas Becker Inc., 2 First National Plaza, Chicago, Ill. 60670

FITTINGS & HARDWARE

Robvon Backing Ring Co., 675 Garden St., Elizabeth, N.J. 07207
Superior Switchboard & Devices, Division of Union Metal Manufacturing Company, P.O. Box 590, Canton, Ohio 44701

FURNITURE

Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
Inland Marine Industries, 1818 Harrison St., San Francisco, CA 94103

GANGWAYS

Rampmaster Inc., 1226 N.W. 23rd Ave., Fort Lauderdale, Fla. 33311

HULL CLEANING

Butterworth Systems, Inc., P.O. Box 9, Bayonne, N.J. 07002
East Coast Marine Associates, Inc., 80 Broad Street, New York, N.Y. 10004
MP Industries Inc., 1200 Ponca St., Baltimore, Md. 21224
U.S. Phosmarine Inc., 3186 Airway Ave., Bldg. F, Costa Mesa, CA 92626
Wheelabrator-Frye, 621 S. Byrkit Ave., Mishawaka, Ind. 46654

HYDRAULICS—Launching Equipment

Hydranautics, P.O. Box 1068, Goleta, Calif. 93017

INERT GAS—Generators—Systems

Airfilco Engineering, Inc., 1901 Julia St., New Orleans, La. 70113
Gaulin Corp., Garden Street, Everett, Mass. 02149

INSULATION—Cloth, Fiberglass

Amatex Corp., 1032 Stanbridge Street, Box 228, Norristown, PA 19044
Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Cryogenic Structures Corp., 10 Fairway Court, Northvale, N.J. 07647
Haveg Industries, Inc. (A subsidiary of Hercules, Inc.) 900 Greenbank Road, Wilmington, Delaware 19808

INSURANCE

Adams & Porter, 1819 St. James Place, Houston, Texas 77027
Adams & Porter, 5 World Trade Center, Suite 6433, New York, N.Y. 10048
R.B. Jones Insurance, 911 Main St., Kansas City, MO 64199
R.B. Jones Insurance, 120 S. Central Ave., St. Louis, MO 63105
R.B. Jones Insurance, 160 Water St., New York, N.Y. 10038

KEEL COOLERS

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

LADDERS

Duo-Safety Ladder Co., 513 West 9th Ave., P.O. Box 497, Oshkosh, Wisc. 54901

MACHINE TOOLS

Master Machine Tools, Inc., 1300 East Avenue A, Hutchinson, Kansas 67501

MARINE CONSTRUCTION

Morrison-Knudsen Company, Inc., P.O. Box 7808, Boise, ID 83729

MARINE SERVICE

General Electric, Schenectady, N.Y. 12345
Siemens Corporation, 186 Wood Avenue South, Iselin, N.J. 08830

MOORING SYSTEMS

Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

Advanced Marine Enterprises, Inc., Suite 500, 2341 Jefferson Davis Highway, Arlington, Va. 22202
Alpha Engineers, 7215 N.E. 13th Ave., Vancouver, Wash. 98665
American Standards Testing Bureau, Inc., 40 Water Street, New York, N.Y. 10004
Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
Anchorage Marine Services Incorporated, 844 Biscayne Boulevard, Miami, Florida 33132
J.L. Bludworth, P.O. Box 5217, Houston, Texas 77012

Boquer & Associates, P.O. Box 30184, New Orleans, La. 70190
Breit & Garcia, Naval Architects, 441 Gravier St., New Orleans, La. 70130

CADCOM Inc., 2024 West St., Suite B, Annapolis, Md. 21401
R.A.CADY-Marine Survey Practice, 2301 Leroy Stevens Road, Mobile, Ala. 36609

Catalina National, Inc., 1725 Monrovia Ave. (Suite A4), Costa Mesa, CA 92627

C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., Jacksonville, Florida 32211

Childs Engineering Corp., Box 333, Medfield, Mass. 02052

Coast Engineering Co., 711 W. 21st St., Norfolk, Va. 23517

Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026

Francis B. Crocco, Inc., Box 1411, San Juan, Puerto Rico

C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048

Design Associates, Inc., 3308 Tulane Ave., New Orleans, La. 70119

Designers & Planners, Inc., 114 Fifth Ave., New York, N.Y. 10011

M. Mack Earle, 103 Mellor Ave., Baltimore, Md. 21228

Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034

Christopher J. Foster, Inc., 14 Vanderverter Ave., Port Washington, N.Y. 11050

Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112

Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006

John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110

Phillip Gresser & Associates (PTE) Ltd., 122 Eng Neo Ave., Singapore 11

Morris Guralnick Associates, Inc., 550 Kearny Street, San Francisco, Calif. 94108

J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048

Hydranautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810

Jantzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227

James S. Kroger & Co., Inc., 3333 Rice St., Miami, Fla. 33133

Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460

Robert H. Macy, P.O. Box 758, Pascagoula, Miss. 39567

Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114

Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746

Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106

Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225

John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048

George E. Meese, 194 Acton Rd., Annapolis, Md. 21403

Metritape, Inc., 77 Commonwealth Ave., West Concord, Mass. 01742

Nelson & Associates, Inc., 2001 N.W. 7th Street, Miami, Florida 33125

Nickum & Spaulding Associates, Inc., 811 First Ave., Seattle, Wash. 98104

Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114

Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156

S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317

Proto-Power Management Corporation, P.O. Box 494, Mystic, Conn. 06355

M. Rosenbratt & Son, Inc., 350 Broadway, New York, N.Y. 10013

and 657 Mission St., San Francisco, Calif.

Sargent & Herkes, Inc., 611 Gravier St., New Orleans, La. 70130

Schmahli and Schmahli, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316

Seaworthy Engine Systems, P.O. Box 327, Canton, Conn. 06019

George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007

T. W. Spaetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2

SRS Shipping Research Services Inc., 205 S. Whiting St., Alexandria, VA 22304

The Stanwick Company Maritime Systems Department, 3661 E. Virginia Beach Blvd., Norfolk, VA 23502

R. A. Stearn, Inc., 100 Iowa St., Sturgeon Bay, Wisc. 54235

Richard R. Taubler Inc., Treadway Towers, 9 E. Lookerman St., Dover, Delaware 19901

H.M. Tiedemann & Co., Inc., 295 Greenwich Ave., Greenwich, Conn. 06830

Timco, 951 Government St., Suite 2161, Mobile, Alabama 36604

Uhlrig & Associates, Inc., 8295 S.W. 188th St., Miami, Florida 33157

Undersea Systems, 112 W. Main St., Bay Shore, N.Y. 11706

Wesley D. Wheeler Associates, Ltd., 104 East 40 St., Suite 207, New York, N.Y. 10016

NAVIGATION & COMMUNICATIONS EQUIPMENT

American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526

Automated Marine Systems Division, Litton Systems Canada Limited, 21101 Oxnard St., Woodland Hills, CA 91364

Communication Associates, Inc., 200 McKay Road, Huntington Station, N.Y. 11746

Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024

Dynell Electronics Corp., 536 Broad Hollow Road, Melville, N.Y. 11746

Edo Corporation, 13-10 111th Street, College Point, N.Y. 11356

Electro-Nav, Inc., 1201 Corbin St., Elizabeth Marine Terminal, Elizabeth, N.J. 07201

Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, N.Y. 10801

Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913

Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011

Intermarine Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780

ITT Decca Marine Inc., P.O. Box G, Palm Coast, Fla. 32037

Konel Corporation, 271 Harbor Way, So. San Francisco, Calif. 94080

Krupp Atlas—Elektronik, A Div. of Krupp Intl. Inc., P.O. Box 58218, Houston, Texas 77058

Lorain Electronics Corp., 2307 Leavitt Road, Lorain, Ohio 44052

Magnavox Navigation Systems, 2829 Maricopa St., Torrance, Cal. 90503

Mieco, Inc., 109 Beaver Court, Cockeysville, Md. 21030

Nav-Cam, Inc., 2 Hicks Street, North Lindenhurst, N.Y. 11757

BUYERS DIRECTORY (continued)

PACKING & JOINTING MATERIALS

Drew Chemical Corp., 701 Jefferson Rd., Parsippany, N.J. 07054

PAINT—Coatings, Protective

Clearkin Chemical Corporation, Schiller & Allen Sts., Philadelphia, Pa. 19134
Eureka Chemical Co., P.O. Box 2205, So. San Francisco, CA 94080
Farboil Company, 8200 Fischer Road, Baltimore, Md. 21222
Hempel's Marine Paint, Inc., 25 Broadway, New York, N.Y. 10004
International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
Products Research & Chemical Corp., (PRC Coating and Sealants Div.) 5430 San Fernando Road, Glendale, California 91203
Union Carbide Corporation, 250 Park Avenue, New York, N.Y. 10017
Woolsey Marine Industries, Inc., 100 Saw Mill Road, Danbury, CT 06810

PETROLEUM SUPPLIES

Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

PILOT LADDERS—Wood Products

A.L. Don Co., 58 Grant Avenue, Carteret, N.J. 07008

PIPE—HOSE—Cargo Transfer, Clamps, Couplings

Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Kubota, Ltd., 22, Funade-cho 2-chome, Naniwa-Ku, Osaka, Japan
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

PLASTICS—Marine Applications

Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PLATENS

Welding Wholesale Co., Div. J.A. Cunningham Eqpt., Inc., 2151 Dreer St., Philadelphia, Pa. 19125

PROPELLERS: NEW AND RECONDITIONED—SYSTEMS

Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
J.W. Berg, S-430 90 Ockero, Gothenburg, Sweden
Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
Coolidge Propellers, 1601 Fairview Ave. East, Seattle, Wash. 98102
Escher Wyss GmbH, P.O. Box 798, Ravensburg, Germany
Lips BV, Lipsstraat 52, Drunen, Netherlands
Propulsion Systems Inc., 21213 76th Ave. South, Kent, Wash. 98031
Voith Schneider—U.S. Agent: Krupp International, Inc., 550 Mamaroneck Ave., Harrison, N.Y. 10528

PROPULSION—Marine

Combustion Engineering, Inc., Windsor, Connecticut 06095
Delaval Turbine Inc., Turbine Div., Trenton, N.J. 08602
In-Place Machining Co., 1929 N. Buffman St., Milwaukee, WI 53212
Maritime Industries Ltd., 6307 Laurel St., Burnaby, B.C., Canada V5B 3B3
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Schottel of America, Inc., 21 N.W. South River Dr., Miami, Fla. 33128
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 10523

PUMPS—Repairs—Drives

Delaval Turbine Inc., IMO Pump Division, P.O. Box 321, Trenton, N.J. 08602
FMC Corporation, Pump Division, 326 So. Dean Street, Englewood, N.J. 07631
Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Terry Corporation, P.O. Box 1200, Windsor, CT 06101
Worthington Pump Inc., P.O. Box 1250, Mountainside, N.J. 07092

RATCHETS

CM American, Division Columbus McKinnon Corp., P.O. Box 74, McKees Rocks, Pa. 15136

REFRIGERATION—Refrigerant Valves

Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014
Stal-Laval, Inc., 400 Executive Blvd., Elmsford, N.Y. 19523

RIGGING & BLOCKS

Crosby Group, P.O. Box 3128, Tulsa, Okla. 74101
Superior Switchboard & Devices, Division of Union Metal Manufacturing Company, P.O. Box 590, Canton, Ohio 44701
D. Van Beest En Zn.B.V., P.O. Box 57, Merwestraat 1-5, Slidrecht, The Netherlands

ROPE—Manila—Nylon—Hawfers—Fibers

American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110
The Cordage Group, Columbian Drive, Auburn, N.Y. 13021
Wall Rope Works, Inc., Beverly, N.J. 08010

RUDDER ANGLE INDICATORS

Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.

SCAFFOLDING EQUIPMENT

Trus Joist Corp., P.O. Box 60, Boise, Idaho 83707

SCALERS

Chicago Monarch, Box 9751, Cleveland, Ohio 44140
Corrosion Dynamics, Inc., 1100 Walnut Street, Roselle, New Jersey 07203

SEWAGE—Pollution Control

Argo Marine, Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Baylor Company, P.O. Box 36326, Houston, Texas 77036
Colt Industries, Water & Waste Management Operation, Beloit, Wisc. 53511
Demco, Inc., P.O. Box 94700, Oklahoma City, OK 73109
Eureka Chemical Co., P.O. Box 2205, So. San Francisco, CA 94080
Engelhard Industries, Chloropac Systems, 2655 U.S. Rt. 22, Union, N.J. 07083
LaMere Industries, Inc., (Marland Environmental Services and Clear Water, Inc.) 227 N. Main Street, Walworth, WI 53184
Mapco, 1437 So. Boulder Ave., Tulsa, Okla. 74119
Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Microphor, Inc., P.O. Box 490, Willits, CA 95490
Red Fox Industries, P.O. Drawer 640, New Iberia, La. 70560
Sigma Treatment Systems, 603 Dean Street, Brooklyn, N.Y. 11238

SHAFTS, SHAFT REVOLUTION INDICATOR EQUIP.

Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

SHIPBREAKING—Salvage

American Ship Dismantlers, Inc., Division of Schnitzer Industries, 3300 N.W. Yeon Avenue, Portland, Ore. 97210
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
General Metals of Tacoma, Inc., 1902 Marine View Dr., Tacoma, Washington 98422
National Metal & Steel Corp., 691 New Dock St., Terminal Island, Cal. 90731
Zideil Explorations, Inc., 3121 S. W. Moody St., Portland, Ore. 97201

SHIP MODELS

Jas Foley & Son, 506 Seventh Street, Santa Monica, Calif. 90402

SHIPBUILDING STEEL

Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., 25 Broadway, New York, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking

Arab Shipbuilding & Repair Yard Co., P.O. Box 5110, Bab-Al-Bahrain Building, Bahrain, Arabian Gulf
Astilleros Espanoles, S.A., 17, Padilla, Madrid 6, Spain
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans La. 70150
Bethlehem Steel Corp., Shipbuilding, 25 Broadway, N.Y., N.Y. 10004
Bludworth Shipyards, Inc., (Subsidiary of Elpac, Inc.), 8502 Cypress St., Houston, Texas 77012
Boston Marine Industrial Park, Public Drydock No. 3, 60 Congress St., Boston, Mass. 02109
Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Curacao Drydock Co., Inc., P.O. Box 153, Willemstad, Curacao, Netherlands Antilles
Dravo Corporation, One Oliver Plaza, Pittsburgh, Pa. 15222
Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
Equitable Shipyards, Inc., P.O. Box 8001, New Orleans, La. 70122
FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208
General Dynamics, Quincy Division, Quincy, Mass. 02169
Gladding-Hearn Shipbuilding Corporation, 1 Riverside Avenue, Somerset, Mass. 02725
Halter Marine Services, Inc., Route 6, Box 287H, New Orleans, La. 70126
Harland & Wolff Shipbuilding & Engineering, Queens Island, Belfast, Northern Ireland
Havre de Grace, Havre de Grace, Md.
Hillman Barge & Construction Co., P.O. Box 510, Brownsville, Pa. 15417
Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edojori 1-Chome, Nishi-Ku, Osaka, Japan
Hongkong United Dockyards Ltd., Kowloon Docks, Hong Kong
Hyundai Mipo Dockyard Co., Ltd., 456 Cheonha-dong, Ulsan, Korea
Hyundai Shipbuilding & Heavy Industries Co., Ltd., 5 World Trade Center, Suite 679, New York, N.Y. 10048
Jeffboat, Inc., Jeffersonville, Ind. 47130
Kawasaki Heavy Industries, Ltd., Kawasaki Kisen Kaisha, Ltd., 8 Kaigan-dori, Kuta-ku, Kobe, Japan
Keppel Shipyard Ltd., P.O. Box 2169, Singapore
Kockums Shipyard, S-201, 10 Malmo 1, Sweden
Lantana Boatyard, Inc., 808 N. Dixie Hwy., Lantana, Fla. 33460
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
Marathon Manufacturing Company
Marathon LeTourneau Offshore Company, 1700 Marathon Building, 600 Jefferson, Houston, Texas 77002
Marathon LeTourneau Gulf Marine Division, P.O. Box 3189, Brownsville, Texas 78520
Marathon LeTourneau Marine Division, LeTourneau Rural Station, Vicksburg, Mississippi 39180
Marathon LeTourneau Offshore Pte., Ltd., P.O. Box 83, Taman Jurong Post Office, Singapore 22, Singapore
Marathon Shipbuilding Company, P.O. Box 870, Vicksburg, Miss. 39180
Marathon Shipbuilding Company (U.K.) Ltd., Clydebank Dunbartonshire, G81-1YB, Scotland
Marinette Marine, Ely Street, Marinette, WI 54143
Matton Shipyards Co., Inc., P.O. Box 428, Cohoes, New York 12047
Maxon Marine Industries, Inc., P.O. Box 349, Tell City, Ind. 47586
J. Ray McDermott & Co., Inc., P.O. Box 60035, New Orleans, LA 70160
Mercantile Marine Engineering & Graving Docks Co., N.V., Antwerp, Belgium
Misener Industries, Inc., 5353 Tyson Avenue, P. O. Box 13625, Tampa, Fla. 33681
Mitsui Shipbuilding & Engrg. Co. Ltd., 6-4, Tsukiji 5-chome, Chuo-ku, Tokyo, Japan
Monark Boat Co., P.O. Box 210, Mantiello, Ark. 71655
Moss Rosenberg Verft A.S., P.O. Box 53, 1512 Jelow/Moss/Norway
Murray & Stewart (Marine) (PTY) Ltd., Ocean Road-Table Bay Harbour, P.O. Box 1909, Cape Town 8000, South Africa
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Navimor U.S.A., One World Trade Center, Suite 3557, New York, N.Y. 10048
Neorion Shipyards Syros, Ltd., Syros, Greece
Northwest Marine Iron Works, P. O. Box 3109, Portland, Oregon 97208
O.A.R.N. (Officine Allestimento-Riparazioni Navi), P.O. Box 1395, Genoa, Italy 16100
Paccoco, Div. Fruehauf Corp., 2350 Blanding Ave., Alameda, Calif. 94501
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
Perth Amboy Dry Dock Co., Perth Amboy, N.J. 08862
Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
Sasebo Heavy Industries Co., Ltd., New Ohtemachi Bldg., Chiyoda-ku, Tokyo, Japan
Savannah Machine & Shipyard Co., P.O. Box 787, Savannah, Ga. 31402
Sembawang Shipyard (Pte) Ltd., P.O. Box 3, Sembawang, P.O. Singapore, 27
Sumitomo Heavy Industries Ltd., 2-1 Ohtemachi 2-chome, Chiyoda-ku, Tokyo, Japan
Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380
Terrin Shipyards, Societe Provencale des Ateliers Terrin, 287, Chemin DeLa Madrague, 13345 Marseille—Cedex 3, France
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
Vancouver Shipyards Co., Ltd., 50 Pemberton Ave., North Vancouver, B. C., Canada
Wiley Mfg., a unit of AMCA International Corp., Suite 200/Stockton Bldg., University Office Plaza, Newark, Del. 19702

SHIP STABILIZERS

Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SHOCK CORDS

Wm. B. Bliss Inc., 381 Park Ave. So., New York, N.Y. 10016

SMOKE INDICATORS

Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

STUFFING BOXES

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

TANK CLEANING

Butterworth Systems Inc., P.O. Box 9, Bayonne, N.J. 07002
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

TANK LEVELING INDICATORS

Gems Sensors Div., Delaval Turbine Inc., Spring Lane, Farmington, Conn. 06032
GPE Controls, Inc., 6511 Oakton Street, Morton Grove, Illinois 60053

TOWING—Vessel Chartering, Lighterage, Salvage, etc.

Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Chotin Transportation, Inc., 1414 One Shell Square, New Orleans, La. 70139
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
Gulf Mississippi Marine Corp., 225 Baronne St., New Orleans, La. 70112
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, La.

Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048

Suderman & Young Towing Co., Inc., 918 World Trade Building, Houston, Texas 77002

Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

B.V. Bureau Wijsmuller, Postbus 510, Ijmuiden, Holland

TURBINES

Camar Corp., 186 Prescott St., Worcester, Mass. 01605
Nicolai Joffe Corp., P.O. Box 2445, South San Francisco, CA 94080
Terry Corporation, P.O. Box 1200, Windsor, CT 06101

UNDERWATER SERVICES

Undersea Systems, 112 W. Main St., Bay Shore, N.Y. 11706

VACUUM LIFT SYSTEMS

DP Way Corp., 3822 West Elm Street, Milwaukee, Wisc. 53209

VALVES AND FITTINGS

American-Darling Valve, Div. of American Cast Iron Pipe Co., P.O. Box 2727, Birmingham, Ala. 35202
Demco, Inc., P.O. Box 94700, Oklahoma City, Okla. 73109
Flexitall Gasket Co., 5 Linden Street, Camden, N.J. 08102
Leslie Company, 399 Jefferson Road, Parsippany, N.J. 07054
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Mechanical Marine Co., 900 Fairmount Ave., Elizabeth, N.J. 07027
Stow Manufacturing Co., 86 Bump Road, Binghamton, N.Y. 13902
Valve Services Corp., 266 54th St., Brooklyn, N.Y. 11220
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186

VIDEO EQUIPMENT

Televideo Corporation, 1014 Wirt Road, Houston, Texas 77055

WATER PURIFIERS

Everpure Inc., 600 North Blackhawk Drive, Westmond, Ill. 60559

WEATHER FORECASTS

Fleetweather, Orbit Lane, Hopewell Junction, N.Y. 12533

WINCHES

Clyde Iron, a unit of AMCA International Corp., Suite 200/Stockton Bldg., University Office Plaza, Newark, Del. 19702
Gearmatic Co., Ltd., 7400 132nd St., Surrey, B.C., Canada
Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
Skagit Corporation, a subsidiary of The Bendix Corporation, Sedro-Woolley, Washington 98284

WINDOWS

Kearfoot Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550

WIRE AND CABLE

Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076
Elkan Electric Cable Co., 248 Third St., Elizabeth, N.J. 07206

WIRE ROPE—Slings

Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042

Bethlehem Steel Corp., Bethlehem, Pa. 18016

WORK PLATFORMS—Self-Propelled

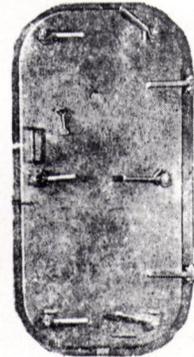
Chamberlain Manufacturing Corp., 845 Larch Ave., Elmhurst, Ill. 60126

ZINC

Smith & McCorken, 153 Franklin St., New York, N.Y. 10013

FOR SALE

NEW WATERTIGHT DOORS



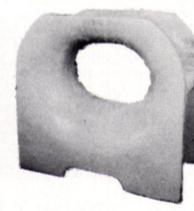
6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed.

SIZE

26"x48"	26"x66"
26"x60"	30"x60"

EACH DOOR

IMMEDIATE DELIVERY



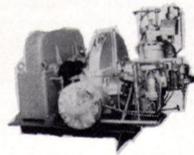
NEW 7" RADIUS PANAMA CHOCKS

(MEET PANAMA REGULATIONS)

With extended legs for welding to deck. IMMEDIATE DELIVERY FROM STOCK.

700 HP CARGO PUMP TURBINE AND GEARS

with oil operated hydraulic governor



TURBINE: Mfg by GE—type DP—700 HP—5000 RPM—inlet pressure 560 PSIG—exhaust pressure 2 PSIG—temp. 490°—steam inlet 6"—outlet 10". Pump rotation is clockwise when standing at pump end and facing turbine & gear.

Turbine is single stage with 2-row bucket wheel—pressure lubricated bearings—carbon shaft packing. Speed is regulated by oil-relayed governor system. REDUCTION GEAR: 5000 RPM to 1425 RPM output. Typical turbine serial #126910/911. G.E.I. Book 27200B.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
539-1900 (301) 355-5050

KEPPEL'S

150,000 DWT Drydock at

TUAS YARD

is now operational as scheduled.

Size of Drydock

301m length X 52m width X 10m depth

Dewatering Time (empty dock)

the dock can be dewatered in 2½ hours by 3 vertical pumps each with capacity of 23,000 cu m per hour

Dock/Wharf Cranage

one 80-ton with 36m reach and three 15-ton cranes

Travelling Stage

two units of highly versatile dockarms, with maximum 28m reach, facilitate hull cleaning, gritblasting, painting and inspection

Other Services

built into both sides of the dock walls are essential facilities such as high pressure water washing system, ballast/sea water cooling, fireline, air lines, fresh water line, oxygen and acetylene, telephone facilities and electrical supplies (50 Hz, 60 Hz and D.C.)

Berthage

total 860m of berthing space

Workshops

total area of 12,600 sq m of comprehensively equipped workshops with maximum overhead cranage of 50 tons.

AGENTS IN USA/CANADA

Midland Marine Corporation
One Penn Plaza, New York, N.Y. 10001 U.S.A. Tel: (212) 736-2666
Telex: 232081 Cable: Midmarbrok New York, U.S.A.

Midland Marine Corporation
Steuart Street Tower (Suite 1005), One Market Plaza, San Francisco
California 94105, U.S.A. Tel: (415) 777-2577 Telex: 910 372 6603
Cable: Midmarbrok San Francisco, U.S.A.

Midland Marine Corporation
1800 St. James Place, AHouston, Texas 77027, U.S.A.
Tel: (713) 622-0151 Telex: 910 881 5771 Cable: Midmarbrok Houston, U.S.A.



325, TELOK BLANGAH ROAD, P.O. BOX 2169,
SINGAPORE 4. TELEPHONE: 2706666,
TELEX: RS 21367. CABLES: KEPPELDOK.



**A new facility backed by over a century's
experience & expertise.**

HITACHI ZOSEN

LNG CARRIER REFERENCE

Hitachi Zosen puts spherical LNG tanks on new gear support

Hitachi Zosen has a way of making research and development pay off. Our lengthy experience building LPG carriers proves it. Among these, the 100,000m³-tank-capacity **Esso Fuji** is the world's largest.

Now our new gear support for Hitachi Zosen-Chicago Bridge & Iron gear-support type LNG carriers helps to prove it again. **We did it our way**

The spherical LNG tank is designed with external horizontal ring girders in the equatorial section.

Support blocks on the bottom of the girders have a gear configuration, and each is accommodated in a recessed construction on the supporting deck with load bearing insulation blocks in between.

The contact surface of the insulation blocks is smoothly machine finished to support the weight of the tank and cargo horizontally and allow free radial contraction toward the

center of the tank during cooling. While restricting vertically and radially longitudinal and traverse loads from ship motions.

There's no integral structural connection between the tank and the ship's hull, so there's free displacement for thermal contraction or retraction of the tank, no excessive stress in the tank shell and minimum bending moment at the tank equatorial section.

What it all means is the Hitachi Zosen-Chicago Bridge & Iron gear support is simple. Highly efficient. And easy to install.

This is what you want when you build an LNG carrier now or in the future. This is what you get when you come to Hitachi Zosen.

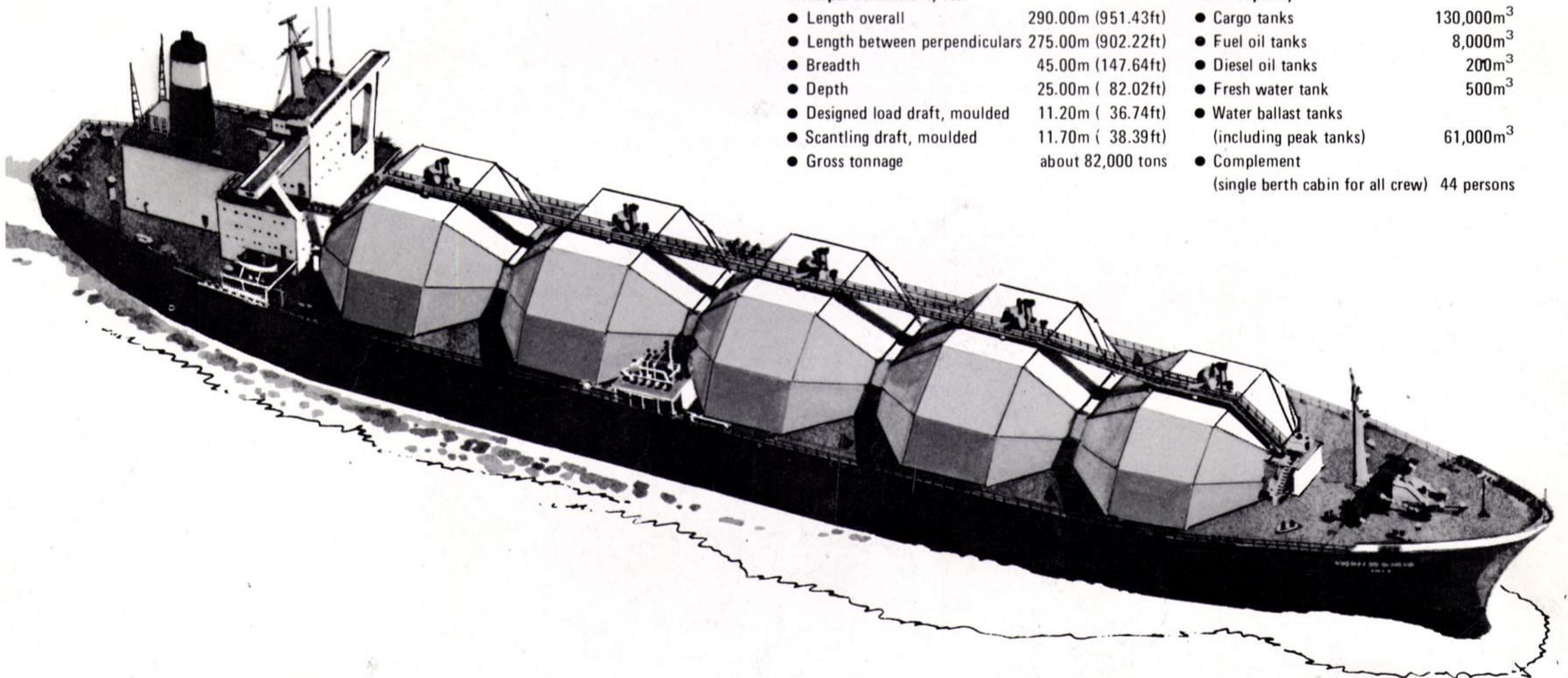
130,000m³ Type LNG Carrier

Principal Dimensions, etc.

● Length overall	290.00m (951.43ft)
● Length between perpendiculars	275.00m (902.22ft)
● Breadth	45.00m (147.64ft)
● Depth	25.00m (82.02ft)
● Designed load draft, moulded	11.20m (36.74ft)
● Scantling draft, moulded	11.70m (38.39ft)
● Gross tonnage	about 82,000 tons

Tank Capacity

● Cargo tanks	130,000m ³
● Fuel oil tanks	8,000m ³
● Diesel oil tanks	200m ³
● Fresh water tank	500m ³
● Water ballast tanks (including peak tanks)	61,000m ³
● Complement (single berth cabin for all crew)	44 persons



HITACHI ZOSEN: 1-1-1 Hitotsubashi, Chiyoda-ku, Tokyo 100, Japan Phone: 03-213-6611 Telex: J22363, J24490 **OVERSEAS OFFICES & SUBSIDIARIES:** **Oslo:** Raadhugaten 4, Oslo 1, Norway Phone: 411275 Telex: 16934 **Greece:** Room 5/6, 5th Floor, No. 33 Akti Miaouli, Piraeus, Greece Phone: 452-7548/9 Telex: 212943 **Hitachi Zosen Company (HK) Ltd.:** Room 408, Tak Shing House, 20 Des Voeux Road, Central, Hong Kong Phone: 5-220597 or 5-246237 Telex: 73648 **Hitachi Zosen Industria Pesada Ltda.:** Rua Mexico 90, 5º Andar, Rio de Janeiro-RJ, Brasil Phone: 221-5979 Telex: 2122904 **AGENTS: Hitachi Zosen International, S.A.:** **London:** Winchester House, 77 London Wall, London, England Phone: 01-588-3531/3 Telex: 887873/884009 **New York:** 345 Park Avenue, New York 10022, U.S.A. Phone: 212-355-5650 Telex: 232036 **Houston:** Suite 1450, One Allen Center, 500 Dallas Avenue, Houston, Texas 77002, U.S.A. Phone: 713-658-0136/8 Telex: 775038, 910-881-1191